



Fire detection and evacuation solutions that save lives.



# ZoneSense PLUS

Fire Alarm Control Panel EN54 2&4 1997

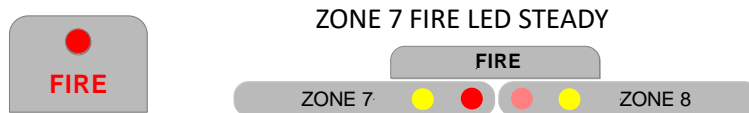
Installation, Commissioning & Operation

MAN 2326-13

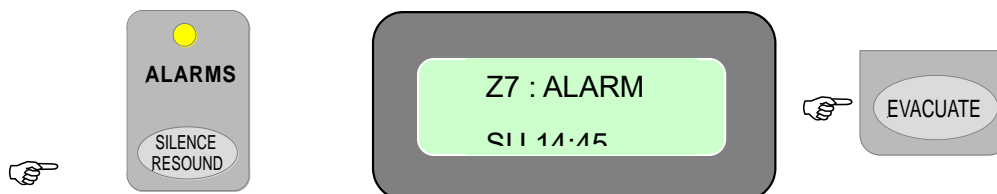
## FIRE BRIGADE RESPONSE GUIDE

### INCOMING ALARM CONDITION

#### 1. INDICATION



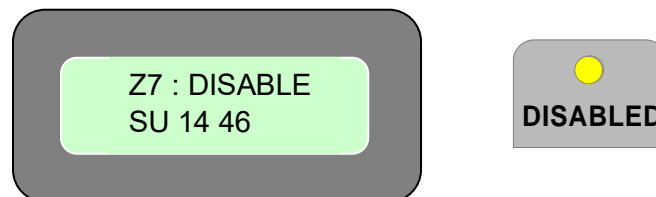
#### 2. SOUNDER SILENCE OR SOUND EVACUATION



*Access to these controls is restricted by a Password / Panel Keyswitch  
For multiple Zones in Alarm repeat the above steps after pressing.*

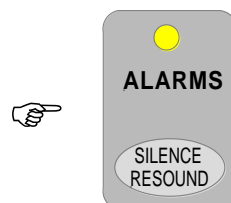


*to step to the next Zone in Alarm.*



#### 3. SOUNDER SILENCE / SOUNDER RESOUND

PRESS SILENCE / RESOUND TO SILENCE ALARMS. PRESS AGAIN TO REACTIVATE.



#### 4. RESET ALARMS

PRESS RESET



## Contents

<b>1</b>	<b>About This Manual .....</b>	<b>5</b>
1.1	Purpose.....	5
1.2	Scope.....	5
1.3	References .....	5
<b>2</b>	<b>Introduction.....</b>	<b>6</b>
2.1	Features.....	6
<b>3</b>	<b>Mechanical .....</b>	<b>7</b>
3.1	Mounting the Enclosure .....	7
3.1.1	Fixing the Chassis to the Wall.....	7
3.1.2	PCB Removal / Replacement.....	10
3.1.3	Removing the Knockouts .....	10
<b>4</b>	<b>Electrical .....</b>	<b>11</b>
4.1	Primary Power Supply .....	11
4.1.1	Mains wiring.....	11
4.1.2	Connecting the Panel.....	11
4.1.3	Installing the Power Supply PCB.....	11
4.1.4	Connecting the Mains.....	11
4.2	Battery Charger .....	12
4.3	Secondary Supply .....	13
4.3.1	Connecting the Stand-By Batteries.....	13
4.4	Cable Types and Limitations .....	13
4.5	Powering Up the Panel.....	13
<b>5</b>	<b>Main Control Card BRD25MCB –A (4 Zone) B (8 Zone).....</b>	<b>14</b>
<b>6</b>	<b>Wiring to the Main Card BRD25MCB .....</b>	<b>16</b>
6.1	Earth Monitoring.....	16
6.2	Communications .....	16
6.3	TB3 Inputs.....	17
6.4	Zones.....	17
6.4.1	Detector Interface .....	17
6.4.2	Detector Configuration .....	17
6.4.3	Detector Removal Facility .....	18
6.5	Zone Circuit Wiring TB13 - 14 .....	18
6.6	Monitored Alarms Outputs.....	18
6.7	Conventional Sounder Circuit Wiring .....	19
6.7.1	Sounder Loading and Distribution.....	19
6.8	Outputs –Monitored Modified Open Collector TB5.....	19
6.8.1	Alarm Output TB5 1/2 .....	19
6.8.2	Fault Output TB5 3/4 .....	19
6.9	Outputs – Volt Free Relay Programmable .....	20
6.9.1	Ancillary Output TB5 5/6/7 .....	20
6.10	Outputs – Volt Free Relay Non-Programmable.....	20
6.10.1	Fault Output TB5 8/9/10.....	20
6.10.2	Auxiliary Power Output TB12 1/2.....	20
6.10.3	Buzzer.....	20
6.10.4	Reset Terminal / Buzzer Output. TB12/3.....	21
<b>7</b>	<b>Adding Control and Monitoring Facilities.....</b>	<b>22</b>

7.1	Internal Communications Connector (RS485) .....	22
7.2	Installation and Cabling of Add On Cards & Boards .....	23
7.3	Terminating the Communications Bus .....	23
<b>8</b>	<b>Internal Terminal Block Numbering Quick Reference.....</b>	<b>25</b>
<b>9</b>	<b>Status and Programming Screens .....</b>	<b>26</b>
9.1	Level 1 to 3 Status Screens .....	26
9.2	Level 2 Test Screens.....	27
9.3	Level 2 Disable Screens.....	27
9.4	Level 3 System Programming.....	28
9.5	Level 3 Programming Menu.....	29
<b>10</b>	<b>List of Compatible Devices.....</b>	<b>30</b>
10.1	Item Numbers .....	31
<b>11</b>	<b>Glossary of Terms .....</b>	<b>32</b>
<b>12</b>	<b>Definitions .....</b>	<b>33</b>
<b>13</b>	<b>Battery Capacity Calculation .....</b>	<b>34</b>
<b>14</b>	<b>Trouble Shooting Chart.....</b>	<b>38</b>
<b>15</b>	<b>Installation and Commissioning Report .....</b>	<b>39</b>
15.1	Procedure .....	40
15.2	System Information .....	40
<b>16</b>	<b>Statement of Compliance .....</b>	<b>43</b>
<b>17</b>	<b>Installation Details.....</b>	<b>45</b>
<b>18</b>	<b>Certification Information .....</b>	<b>46</b>
<b>19</b>	<b>Commissioning Of Installed Cards And Boards .....</b>	<b>47</b>
<b>20</b>	<b>EN54 ABS Inner Front Panel Configuration Labelling .....</b>	<b>48</b>
<b>21</b>	<b>Specifications.....</b>	<b>49</b>

## 1 About This Manual

### 1.1 Purpose

This manual is an instructional tool for the installation, commissioning, programming / reprogramming and operation of the ZoneSense PLUS Fire Alarm Control Panel (FACP).

### 1.2 Scope

The information within this manual is only available to and for the use of personnel engaged in the installation and operation of the **ZoneSense PLUS** FACP.

**ZoneSense PLUS** has been designed to comply with major world standards. To ensure these standards are not compromised in any way installation staff and operators should;

1. Be qualified and trained for the task/s they undertake;
2. Be aware this manual should be read prior to the installation and commissioning of the **ZoneSense PLUS** FACP;
3. Observe anti-static pre-cautions at all times; and
4. If a problem is encountered or there is any doubt with respect to the operational parameters of the installation the supplier should be contacted.



**Note:** *It is strongly recommended that all front panel changes and or programming be appropriately recorded.*

### 1.3 References

**ZoneSense PLUS** Technical Manual

**ZoneSense PLUS** Programming Manual

**Apollo** Detector / Device Manuals

Ampac Product Data Sheets

British Standard: BS 5839

European Standard: EN54 Parts 2 & 4



Figure 1: Examples of the ABS (BX1) and Metal (BX10) Cabinets

## 2 Introduction

The **ZoneSense PLUS** 4, 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;

**British Standard**                      BS 5839

**European Standard**      EN54 Parts 2 & 4

The basic **ZoneSense PLUS** is available in a ABS (BX1) and Metal (BX10) cabinets and consists of a;

1. Main PCB, with all controls and indicators mounted directly onto it; and
2. A switch-mode power supply;
3. 2 X 12 Volt batteries connected in series.
4. 2 X ABS and / or 003 keys



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

### 2.1 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 “Alarms” outputs.
- Two optional auxiliary input connections.
- Two current limited outputs (Fire [alarm] and Fault).
- Two relay outputs (ancillary and fault).
- Optional external buzzer or reset output.
- System expansion capabilities / options:
- Keyswitch/password entry to a wide range of engineering functions which include;
  1. Selectable zone delay;
  2. Zone test;
  3. Coincidence ( double-knock );
  4. Non-latching zones;
  5. Comprehensive fault diagnostics;
- A wide range of secure user functions. This includes the ability to disable/enable a large number of system functions.
- An “Alarm Time” feature is standard on all panels.
- 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 Mechanical

**ZoneSense PLUS** can be surface or semi-flush mounted. The ABS version is supplied with a detachable door, a mountable back box. Depending on the configuration it may be necessary to remove the batteries to expose the lower mounting keyhole.

All of which are easily removed should it be necessary.

Inside the door is a matrix style label for the recording of the panel configuration.

#### 3.1 Mounting the Enclosure

The panel **MUST** be mounted in an area that is **NOT** subject to conditions likely to affect its performance, e.g. damp, salt-air, water ingress, extremes of temperature, abuse etc. is at an easily accessible height and such that the indicators are at eye level.

##### 3.1.1 Fixing the Chassis to the Wall

Taking into account the total weight of the panel and batteries securely mount the panel.

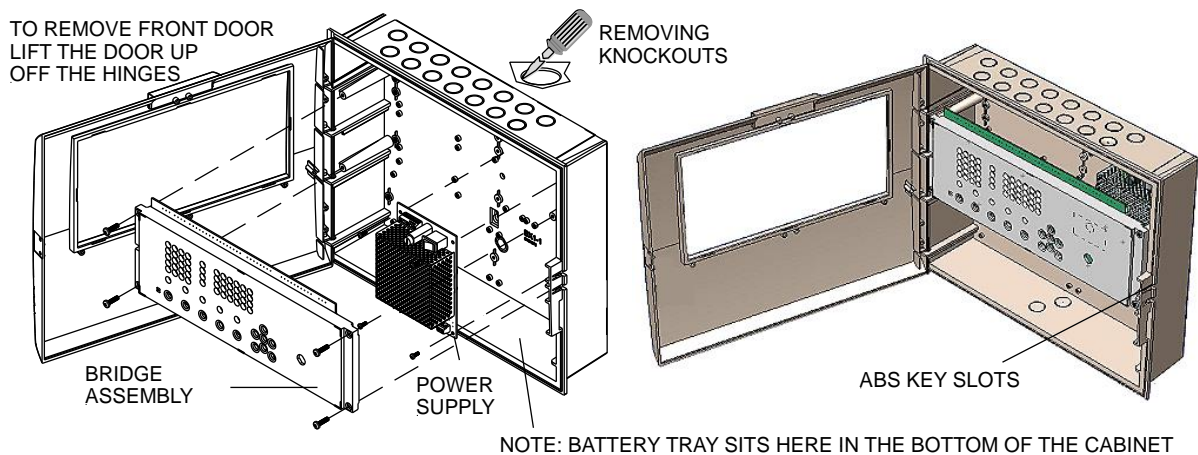
The ABS (BX1) uses three keyhole mounting holes

The Metal Cabinet (BX10) uses two keyhole and two standard mounting holes

Use suitably sized screws and plugs for the type of mounting surface.

Mounting is best achieved by positioning the box against the surface it is to be mounted to, marking the holes, taking the box well away from the surface and then drilling the holes.

**Caution:** Any dust or swarf created during the fixing process must be kept out of the cabinet and great care should be taken not to damage any wiring or components.



*Figure 2: Explode and Assembled View for the ABS Model FACP Note: The Metal Cabinet (BX10) is assembled in the same fashion*

The BX1 front door is locked by way of two clips on the right hand side of the cabinet. A special locating key which has two raised pins that are inserted into the side of the cabinet unlocks the door. The BX1 can also be supplied with a 003 Key Lock if required. The BX10 box is locked with a 003 Key.

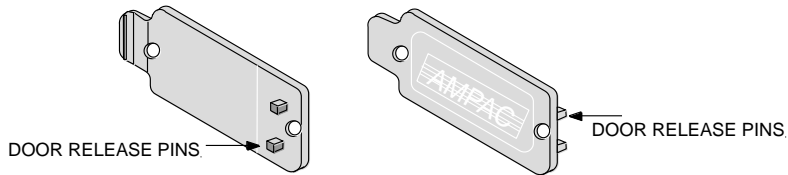


Figure 3: Plastic Key

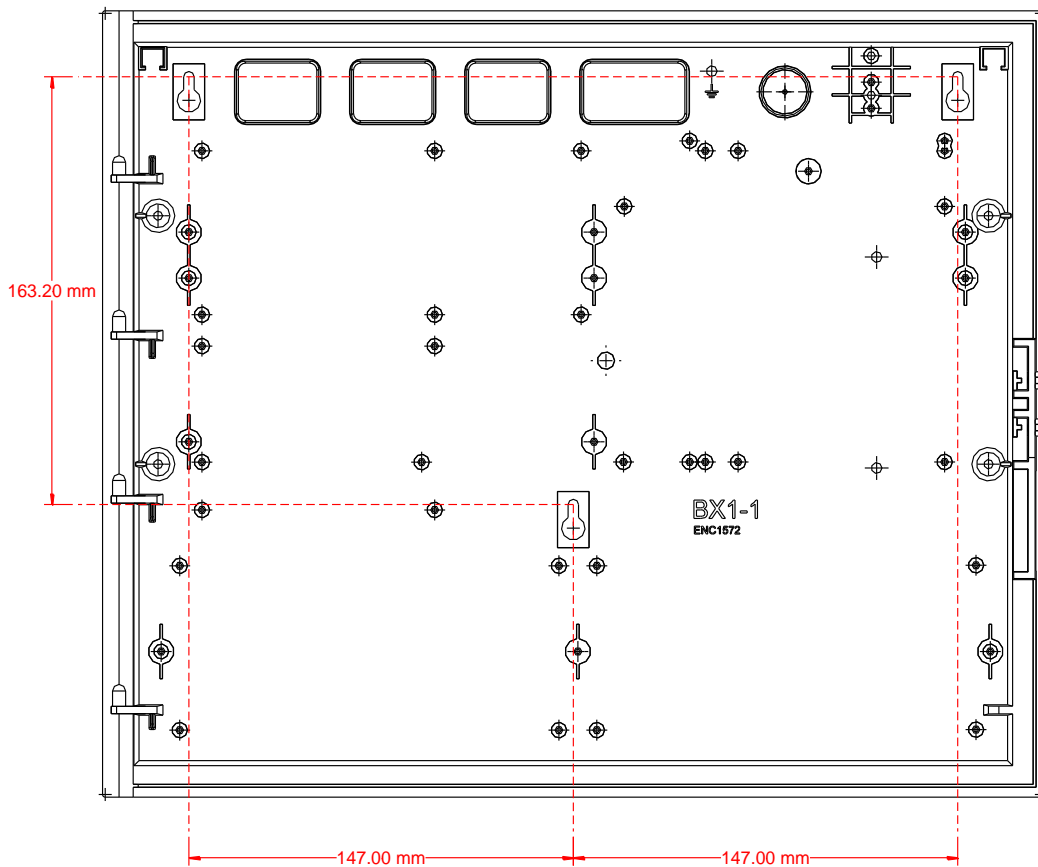


Figure 4: ABS cabinet (BX1) Mounting Points



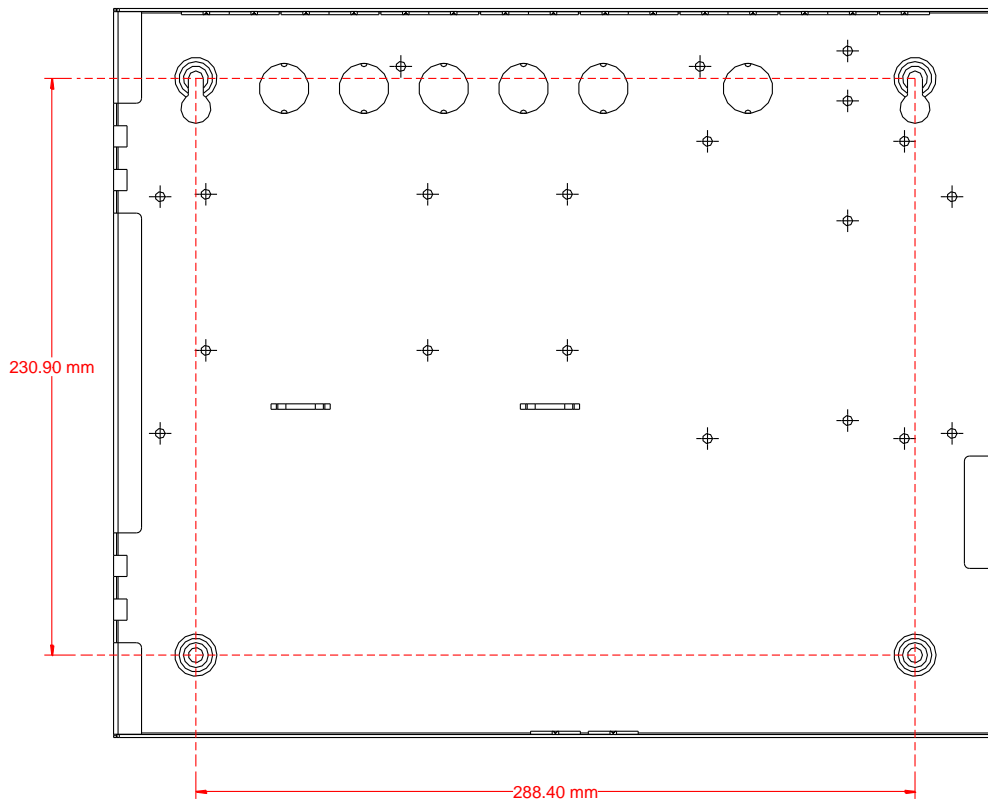


Figure 5: Metal Cabinet (BX10) Mounting Points

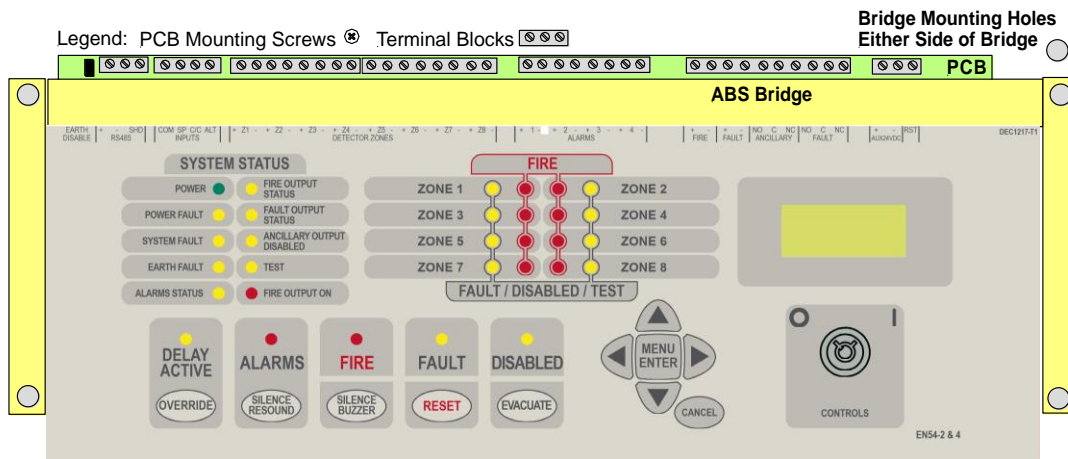


Figure 6: Exploded Front View of Membrane, Bridge and PCB for the ABS Model

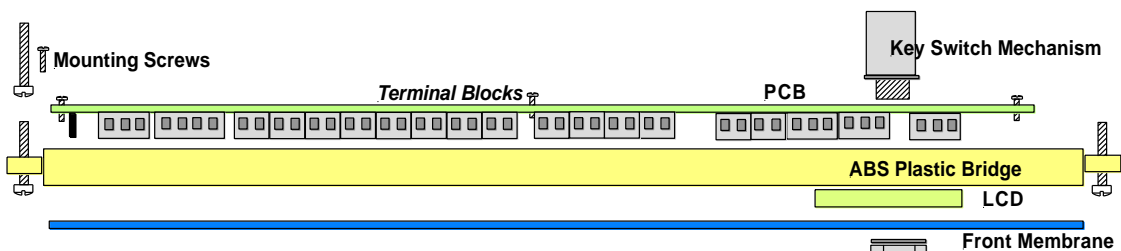


Figure 7: Exploded Top View of Membrane, Bridge and PCB

### 3.1.2 PCB Removal / Replacement

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



1. Removing the door will provide better access to the boards and ensure the hinges are not accidentally stressed.
2. Personal anti- static procedures must be followed.
3. When disconnecting the telecom style (RJ45) connecting cable from the PCB, make sure that the cable remains connected to at least one board to prevent it being misplaced.

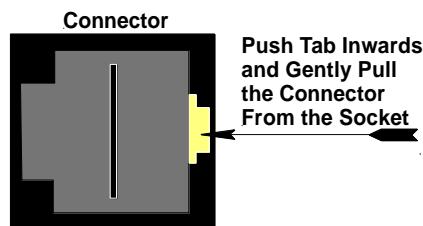


Figure 8: RJ45 Connector



**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.

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

### 3.1.3 Removing the Knockouts

Carefully decide how the wiring will be brought into the panel then remove the required knock-outs for the bushes and cables.

The knock-outs should be removed with a sharp tap in the rim of the knock-out using a flat broad-bladed screwdriver. Use of excessive force could damage the enclosure around the knock-out.

Always ensure if a knock-out is removed, the hole is filled with a good quality cable gland. *Any unused knock-outs must be securely blanked off.*



Figure 9: Knockout Removal

## 4 Electrical

### 4.1 Primary Power Supply

The Power Supply is;

- A switch-mode design and operates from a mains supply of: 90VAC - 264VAC @ 47Hz - 63Hz;
- Capable of supplying the system while all zones are in alarm; and

#### 4.1.1 Mains wiring

The requirement for the Mains supply to the FACP is fixed wiring, using three core cable (no less than 0.75mm" and no more than 2.5mm" ) 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.

#### 4.1.2 Connecting the Panel

Connecting **ZoneSense PLUS** internal connections and PCBs 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

**ⓘ 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.*

#### 4.1.3 Installing the Power Supply PCB

**ZoneSense PLUS** Power Supply PCB combines the functions of a Mains to DC switched mode power supply unit, battery charging unit and battery monitoring unit.

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

#### 4.1.4 Connecting the Mains

The technician should NOT attempt to connect Mains to the Panel until fully conversant with the layout and features of the Power Supply PCB.

The incoming Mains cable should be brought into the Panel at the top right hand side of the enclosure and correctly terminated on the Chassis Earth Terminal and then to the Power Supply connector block.



**Note:** *Fuse F1 (2Amp Supply 1.25 Amp / 250VAC M205) (3 Amp Supply 2Amp / 250VAC M205) is field replaceable*

*Before switching on the Power Supply the Earth MUST be connected to the chassis earth terminal.*

1. All earth cabling must be terminated to the Panel Chassis Earth Terminal in a Star configuration.

2. The earth cable closest to the cabinet body must have an M4 SPW beneath the lug then an M4 SPW and M4 nut.
3. Each additional earth cable must be terminated with an M4 SPW and M4 nut.
4. An additional M4 nut and M4SPW are fitted to the earth terminal for installers to connect the mains earth

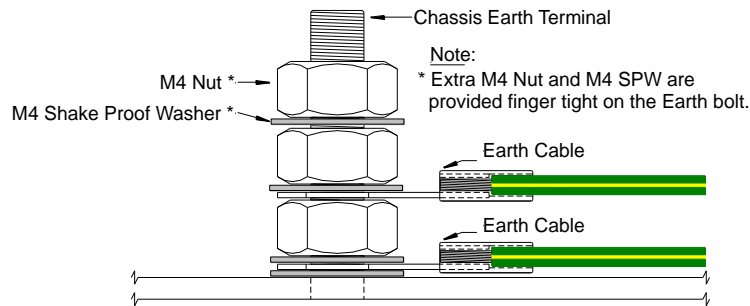


Figure 10: Chassis Earth Terminal Connection

## 4.2 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.



**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.

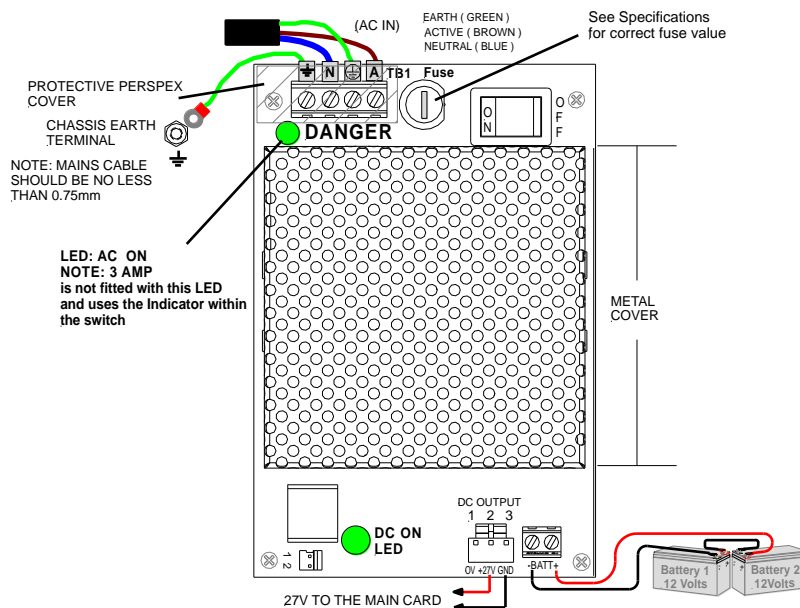


Figure 11: Power Supply Battery Charger Wiring

## 4.3 Secondary Supply

In the event of a mains failure the backup battery is capable of maintaining the quiescent condition for 72 hours as well as full alarm load for a further period of 30 minutes.



**Note:** Any power supply fault to be indicated within 1 hour.

### 4.3.1 Connecting the Stand-By Batteries

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 ( CN 3 ) should be run to the batteries in such a way there is no risk of them being damaged 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 "POWER FAULT "LED will be illuminated.

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.

## 4.4 Cable Types and Limitations

All System wiring should be installed to meet national wiring regulations.

To shield the Panel from outside interference and ensure compliance with Electro Magnetic regulations screened cables can be used throughout an installation.

## 4.5 Powering Up the Panel



**Note:** It is not recommended to connect the batteries before applying mains power first.

Ensure that the panel is free from swarf, wire ends, knockout blanks and any other debris

Ensure that all cable connections to zones, sounder circuits and other inputs or outputs being used are correct and that the wiring is formed neatly away from the surface of the circuit boards before applying power.

Connect the mains, and turn on the Panel by switching the power supply switch to the on position.

Check the polarity of the battery connections carefully before proceeding.

Connect the batteries together first by fitting the battery link (typically a white cable) to a +ve terminal of one battery and to a –ve terminal of the second battery.

Connect the red battery lead to the +ve terminal of the second battery and the black battery lead to the –ve terminal of the other battery.



**Note:** It is not recommended to connect the batteries before applying mains power first.

## 5 Main Control Card BRD25MCB –A (4 Zone) B (8 Zone)

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

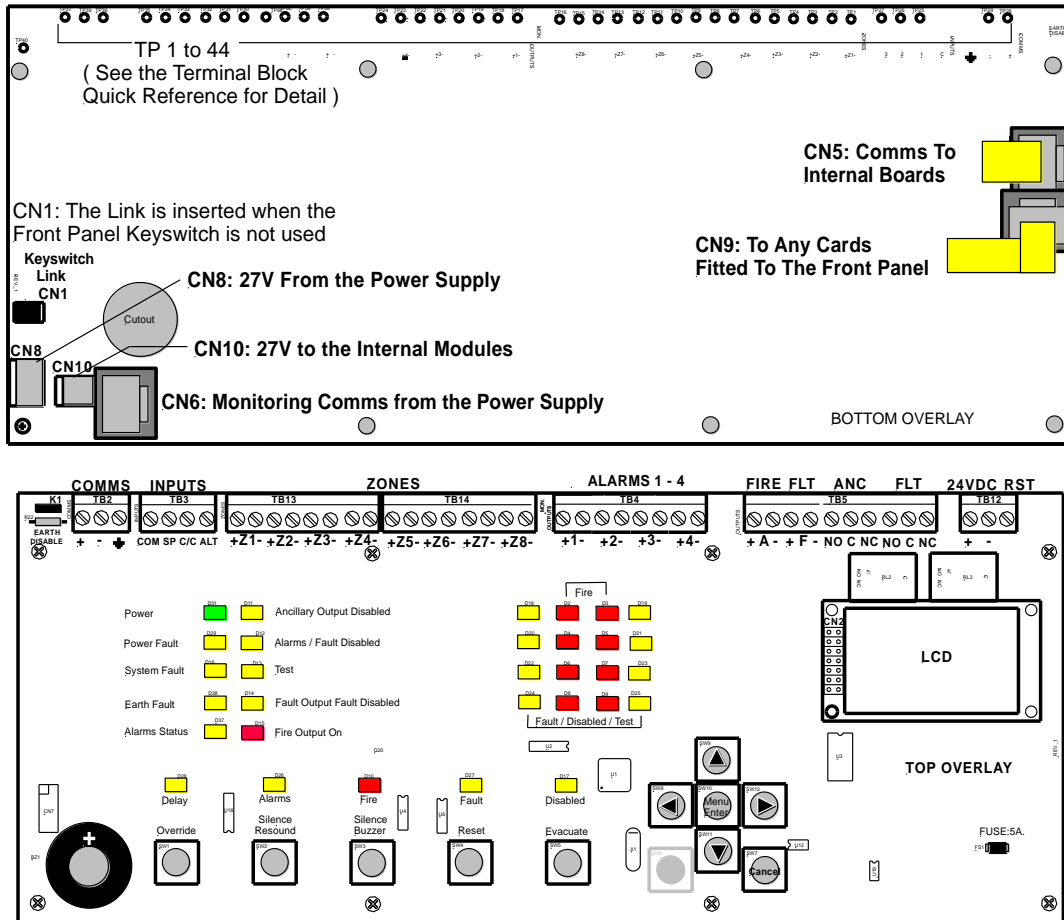


Figure 12: Main Control Card Top and Bottom Layout

### Cabling

Connector	Purpose /Pins
CN1	Link pins 1 & 2 when the front panel keyswitch is NOT used.
CN2	LCD Driver
CN3 & 4	LCD Back Lighting
CN5	Comms and +/- 27VDC to the front panel cards.
Pins	1 & 8 = 0V      2 & 7 +27VDC      3 & 4 = RS 485 Bus,      5 = Tx. Enable
CN6	Monitoring / Comms from the Power Supply.
Pins	1 & 8 = 0V      2 = PSU Sense      3 = PSU Adjust      4 = Charger ON 5 = Batt Load      6 = Temp sense      7 = Batt V Sense.
CN7	Factory Use Only
CN8	+/- 27VDC and earth from the Power Supply / Charger.
Pins	1 = 0V      2 = +27VDC      3 = Earth
CN9	Comms to the internal back plane boards.
Pins	Pin connections are the same as CN5
CN10	1 +27VDC and 2 0V to the internal back plane boards

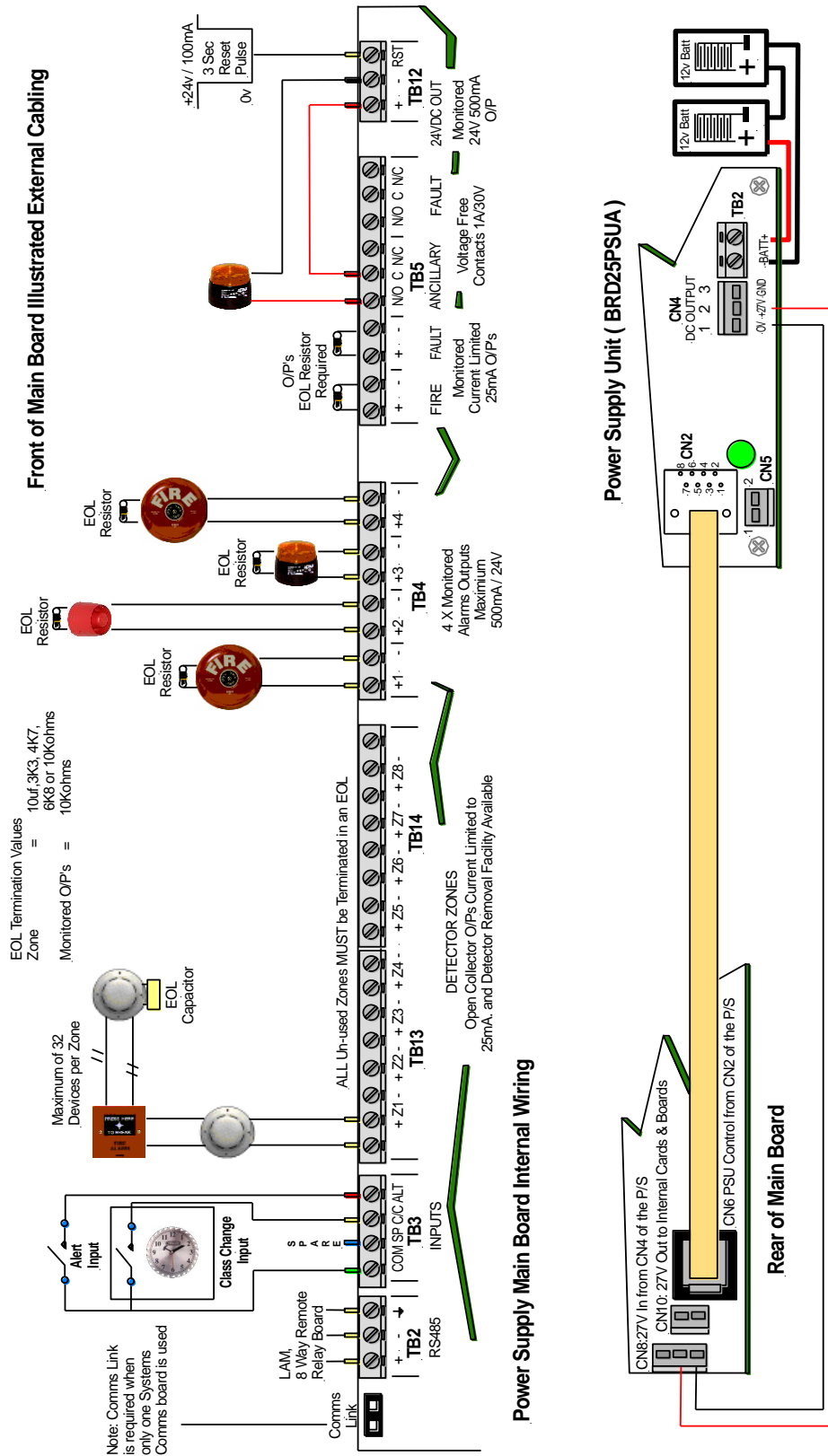



Figure 13: Simple Wiring Diagram of the Basic FACP

## 6 Wiring to the Main Card BRD25MCB

### 6.1 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 its 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.

### 6.2 Communications

#### 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 panel itself. The external cabling (2x2 shielded pair plus power) is wired to TB2 +, - and earth.

 **Note:** If a fault occurs on the communications bus the common FAULT and SYSTEM FAULT LED'S are illuminated and the details can be displayed on the LCD by selecting the Faults Menu.

#### Remote Cards

The number of cards that can be installed on the external communications bus are:

- 8 x Remote Zone Mimic Indicator Cards
- 1 x Remote Relay Board. provides 8 sets of normally open (NO), normally closed (NC) and Common (C) voltage free contacts rated at 1A @ 30VDC.

#### Main Card Comms Link K1

LK1 **MUST** be inserted when only the front door panel cards and the Main Card are used as an FACP. If this is not the case and TB2 is cabled to LED Repeaters and / or 8 Way Remote Relay Boards a link is inserted in the last board to complete the communication circuit **or** if boards are mounted on the back pan and communications are wired from the Main Card then the last board in this chain **MUST** be terminated.

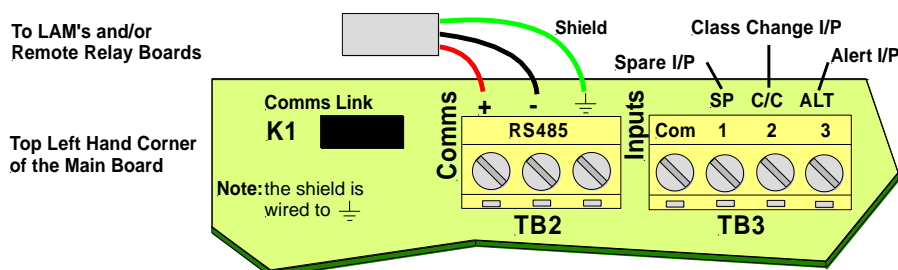


Figure 14: Wiring Detail



## 6.3 TB3 Inputs

### Common Terminal TB3

Used with the inputs 0v potential.

### Spare Input TB3 /1

Not used (Monitored input defaults to general alarm as explained below).

### Class Change Input TB3 / 2

Input is provided to allow a remote connection to operate the sounder alarm outputs. The input is active when it is pulled down to 0v potential. When active the sounder alarms output will operate continuously, no indication shall be given and no other output will operate. This input is monitored, (monitoring may be disabled) and is non-latching.

### Alert Input TB3 / 3

Input is provided to allow a remote connection to operate the sounder alarm outputs. The input is active when it is pulled down to 0v potential. When active the sounder alarm outputs will pulse at a rate of 1sec on 1 sec off, no indication shall be given, no other output will operate. This input is non-latching

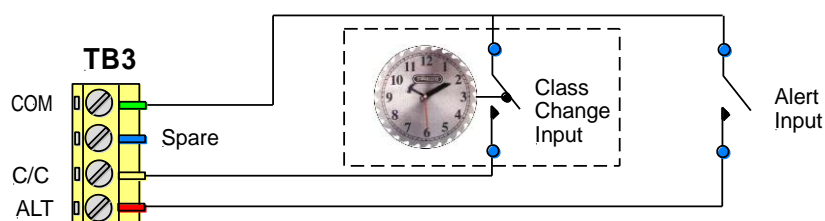


Figure 15: Auxiliary Input Wiring

## 6.4 Zones

### 6.4.1 Detector Interface

All zones will be programmed to operate in one of the 6 different configuration modes each with a reset time in the order of > 1 second < 2 seconds. To maintain “back up “times a maximum of thirty two (40) 24V fire detectors can be connected to each 24mA current limited zone interface.

### 6.4.2 Detector Configuration

The operating configuration modes are,

LCD abbreviations shown are;

Normal	=	Normal
AVF	=	AVF
Non Latching	=	No Latch
Agent Trigger 1	=	Agent T1
Agent Trigger 2	=	Agent T2
Double Knock	=	Dbl Knck


### 6.4.3 Detector Removal Facility


This facility allows for up to 20 detectors to be removed from their bases at any one time. If a detector head is removed a fault will be indicated on that zone and all the other devices retain the ability to initiate an alarm. This facility requires;

- Schottky diodes having a voltage drop of 0.2 – 0.3 of a volt to be installed across L1 in and L1 out on the detector base. The limitation on the number of heads that can be removed is a direct result of the cumulative effect of the voltage drop across each diode. *Diodes will not be required if the head removal facility is not required.*
- The use and programming of a bipolar capacitor as the end of line (EOL) device.

### 6.5 Zone Circuit Wiring TB13 - 14

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.

 **Reminder 1:** A maximum of 32 **ZoneSense PLUS** compatible Optical / Heat Detectors or Manual Call Points can be fitted to each circuit and mixed in any order.

 **Reminder 2:** An End of Line Capacitor must be connected across the terminals of the last device on each circuit. Unused Zones must have an End of Line capacitor fitted at the panel.

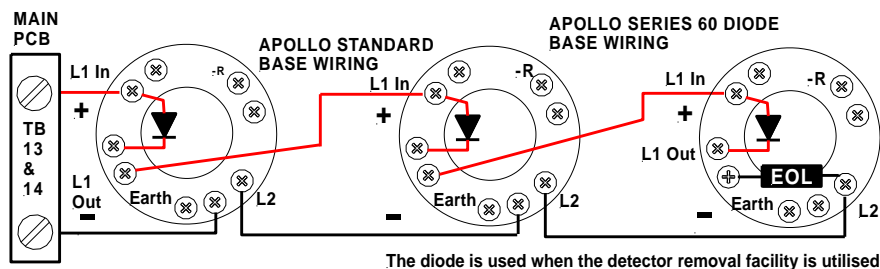


Figure 16: Typical Detector Wiring with Detector Removal Facility Diodes

### 6.6 Monitored Alarms Outputs

The panel has 4 dedicated individually monitored outputs terminated to TB4 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 Conventional Sounder Circuit Wiring

The four alarm outputs can be used for conventional sounder circuits.

 **Note:** All Sounders must be polarised.

An end of line resistor (10kΩ) 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 5mm connector block on the Main Control PCB and the screens terminated to the chassis earth terminal.

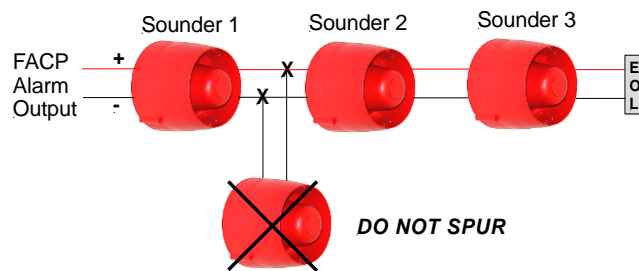


Figure 17: Typical Sounder Circuit Wiring

### 6.7.1 Sounder Loading and Distribution

The FACP's Power Supply is designed to give a maximum output current of 2A. In addition to powering the sounders, this current is also used for handling short circuit faults, supplying the Panel'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 Modified Open Collector TB5

**Definition:** A monitored modified open collector output for user connections such as a relay.

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 in the alarm condition of a zone that is isolated.

The output is current limited to 25mA @ 27VDC.

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 25mA @ 27VDC.

All faults except "System Faults" are non-latching.

## 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 Ancillary 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 except “System Faults” are non-latching.

The contacts are rated at 1A 30VDC. This output is not monitored.

### 6.10.2 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.

### 6.10.3 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;

- Sounder silenced
- Zone isolated
- Warning system isolated
- External bell isolated
- When fitted Ancillary control functions have been isolated.

#### 6.10.4 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:

1. Reset.

Reset is used to reset field devices such as beam detectors that is Reset switches negative for a period of 3 seconds on operation of the "Reset" button.

2. 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.

## 7 Adding Control and Monitoring Facilities

The addition of or a combination of the modules, boards / cards listed below mounted on the back pan or the front panel of the FACP provide additional features 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;

1. Relay Board, BRD25EWRB –A or with a change of on board components it can also be installed remotely on the external communications bus as a Remote Relay Board BRD25EWRB -B
2. Input Board BRD25SIPB -.
3. Sounder Board BRD25SOPB.
4. Brigade Interface Board BRD25BBA.
5. Fire Fan Module consists of a Termination Board (BRD25FTB and front panel card BRD25FCB)
6. Agent Release Module consists of a Termination Board (BRD25ATB), front panel card (BRD25ARB–A) and if required a remote local control station (BRD25ARB–B).
7. General Indicator Card. BRD25GIB -A
8. Switch and Indicator Card BRD25GIBA
9. LED Annunciator Master ( LAM ) BRD25GIB - E



**Note:** To add or remove Cards from the FACP programming go to the SYSTEM Menu.

### 7.1 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 boards and CN5 on the Main Card cables to CN1 or CN2 on the back pan boards

## 7.2 Installation and Cabling of Add On Cards & Boards

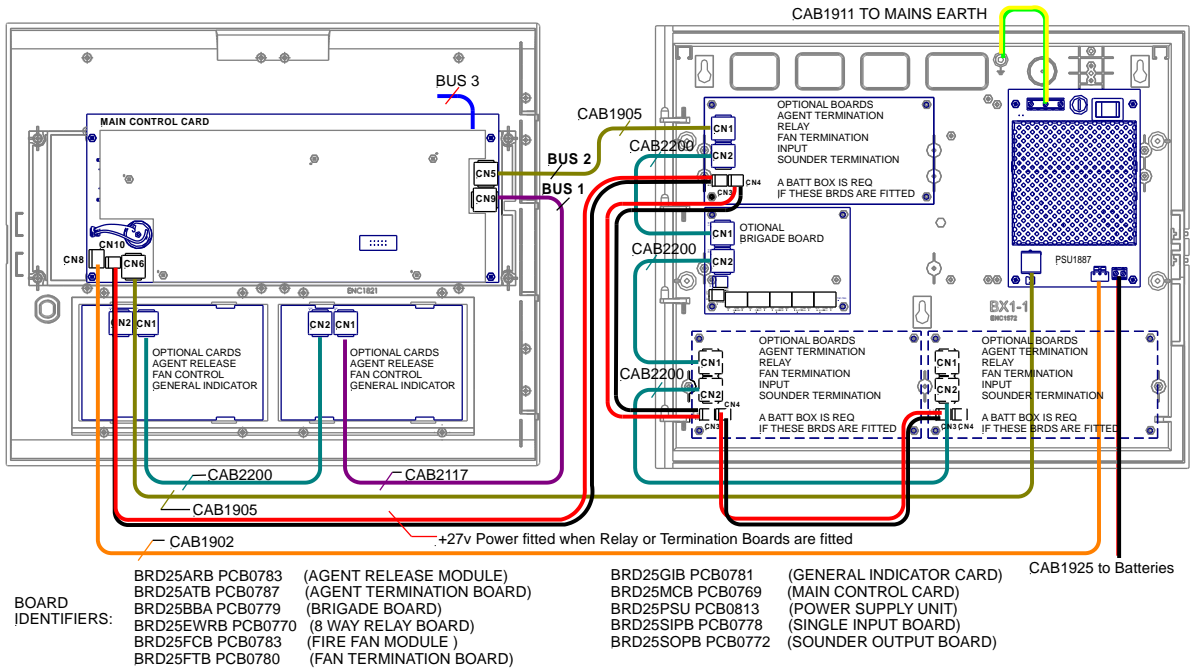


Figure 18: Typical Wiring, Ancillary Card and Board Positioning Within the ABS FACP

## 7.3 Terminating the Communications Bus

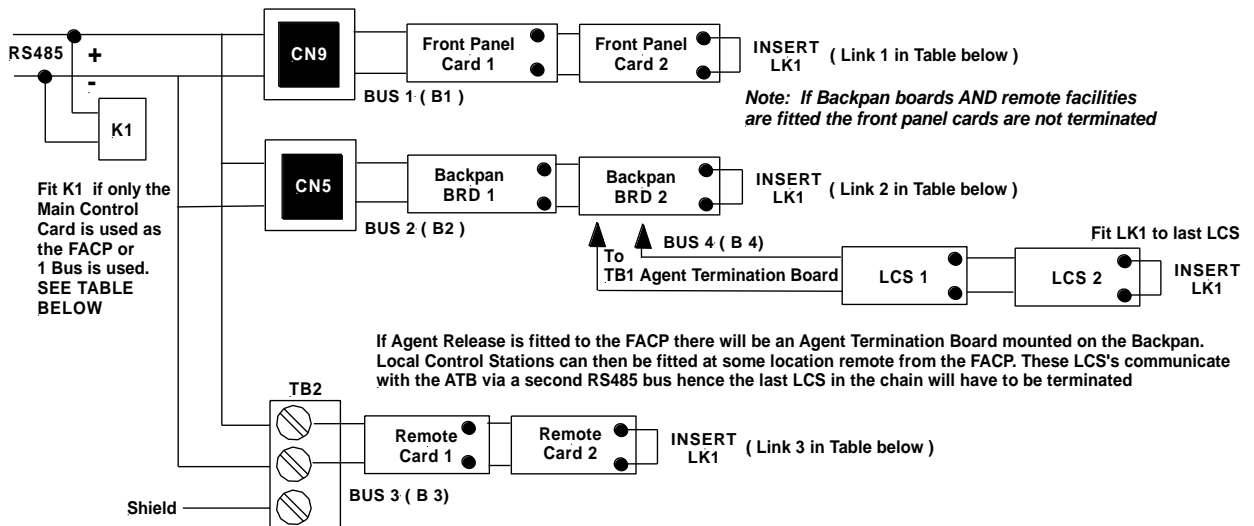


Figure 19: RS485 Communication Bus Terminating

**Linking Table**

Link	Bus Configuration						
	B1	B1,2	B1,3	B1,2,3	B,2	B2,3	B3
<b>1</b>	X & K1	X	X				
<b>2</b>		X		X	X & K1	X	
<b>3</b>			X	X		X	X & K1

X = Insert Link

B1: Bus 1 to Front Panel Cards

B2: Bus 2 to Backpan Boards

B3: Bus 3 to Remote facilities

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



## 8 Internal Terminal Block Numbering Quick Reference

Terminal Block	TP Number	EN54
		<b>COMMUNICATIONS EXTERNAL</b>
<b>TB2/1</b>		RS485 +
<b>2</b>	28	RS485 -
<b>3</b>	29	Shield
		<b>INPUTS</b>
<b>TB3/1</b>		Common
<b>2</b>	25	Spare
<b>3</b>	26	Class Change
<b>4</b>	27	Alert
		<b>ZONES ( 24mA / Zone )</b>
<b>TB13/1</b>	1	+ Zone 1
<b>2</b>	2	- Zone 1
<b>3</b>	3	+ Zone 2
<b>4</b>	4	- Zone 2
<b>5</b>	5	+ Zone 3
<b>6</b>	6	- Zone 3
<b>7</b>	7	+ Zone 4
<b>8</b>	8	- Zone 4
<b>TB14/1</b>	9	+ Zone 5
<b>2</b>	10	- Zone 5
<b>3</b>	11	+ Zone 6
<b>4</b>	12	- Zone 6
<b>5</b>	13	+ Zone 7
<b>6</b>	14	- Zone 7
<b>7</b>	15	+ Zone 8
<b>8</b>	16	- Zone 8
		<b>MONITORED OUTPUTS ( 500mA / O/p )</b>
<b>TB4/1</b>	17	Alarm 1 +
<b>2</b>	18	Alarm 1 -
<b>3</b>	19	Alarm 2 +
<b>4</b>	20	Alarm 2 -
<b>5</b>	21	Alarm 3 +
<b>6</b>	22	Alarm 3 -
<b>7</b>	23	Alarm 4 +
<b>8</b>	24	Alarm 4 -
		<b>MODIFIED OPEN COLLECTOR OUTPUTS ( 25 mA / O/P )</b>
<b>TB5/1</b>	25	Fire +
<b>2</b>	26	Fire -
<b>3</b>	27	Fault +
<b>4</b>	28	Fault -
		<b>OUTPUTS VOLT FREE RELAY ( 1A @ 30VDC )</b>
<b>5</b>	29	NO Alarm
<b>6</b>	30	C Alarm
<b>7</b>	31	NC Alarm
<b>8</b>	32	NO Fault
<b>9</b>	33	C Fault
<b>10</b>	34	NC Fault
<b>TB12/1</b>	35	Aux 24VDC + (Mon 500mA)
<b>2</b>	36	Aux 24VDC -
<b>3</b>	37	Reset 3sec 24VDC 100mA max pulse

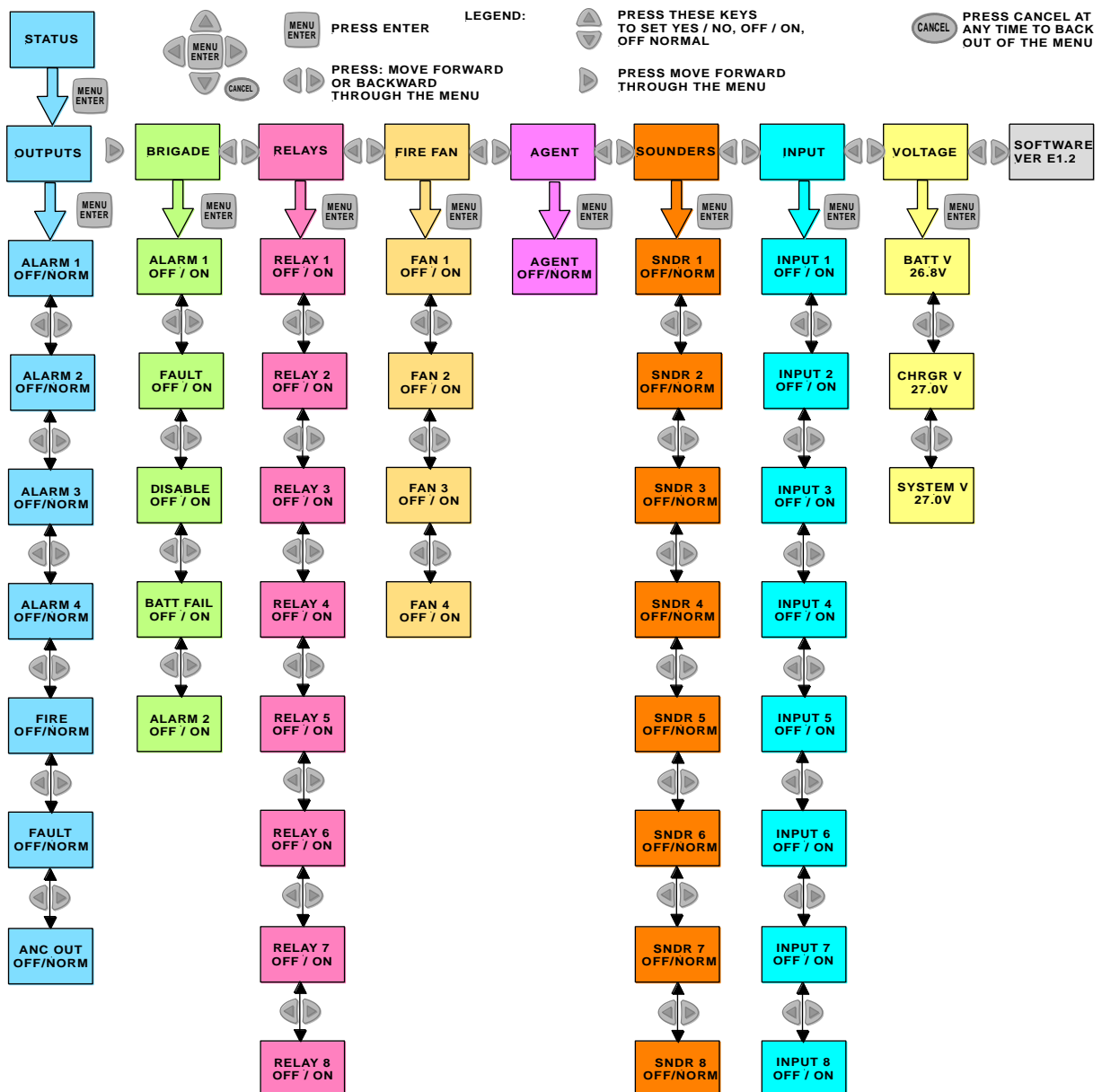
## 9 Status and Programming Screens

The following shows all the screens that are possible in the FACP and how to navigate through them. If a screen is not available it means that option has not been installed or is not available to the model in use.

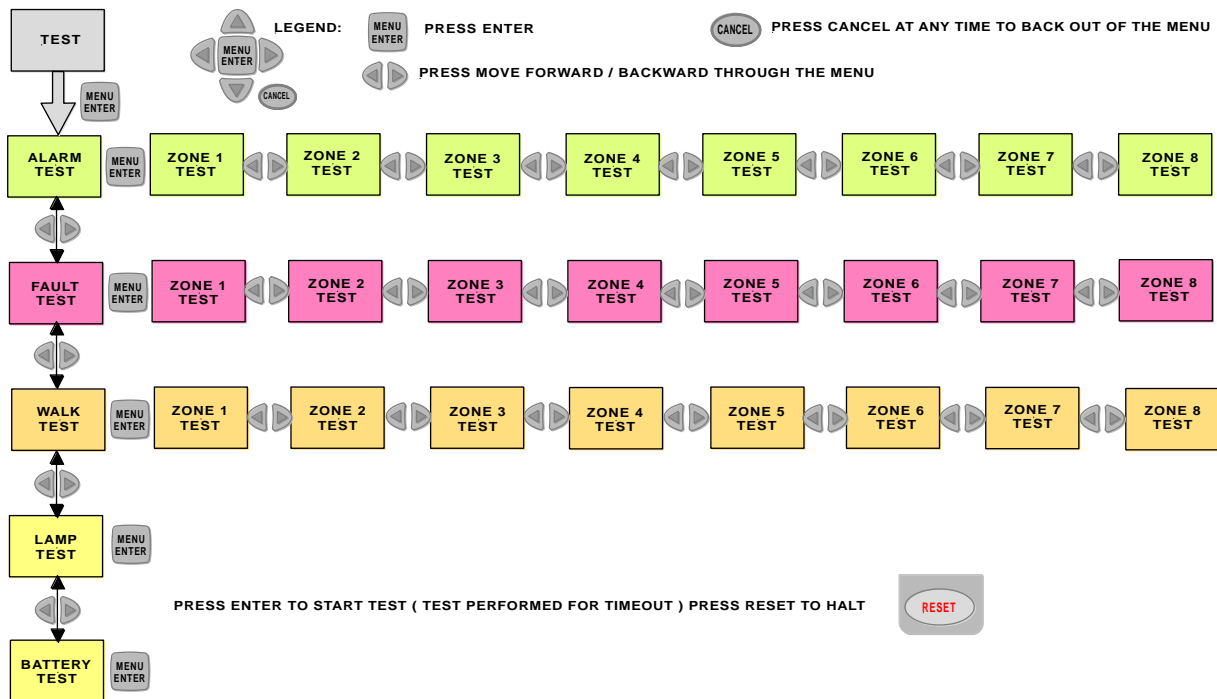
### Operating Main Menu

LEVEL 1		LEVEL 2		LEVEL 3	
STATUS	FAULTS	TEST	DISABLE	SYSTEM	PROGRAMMING

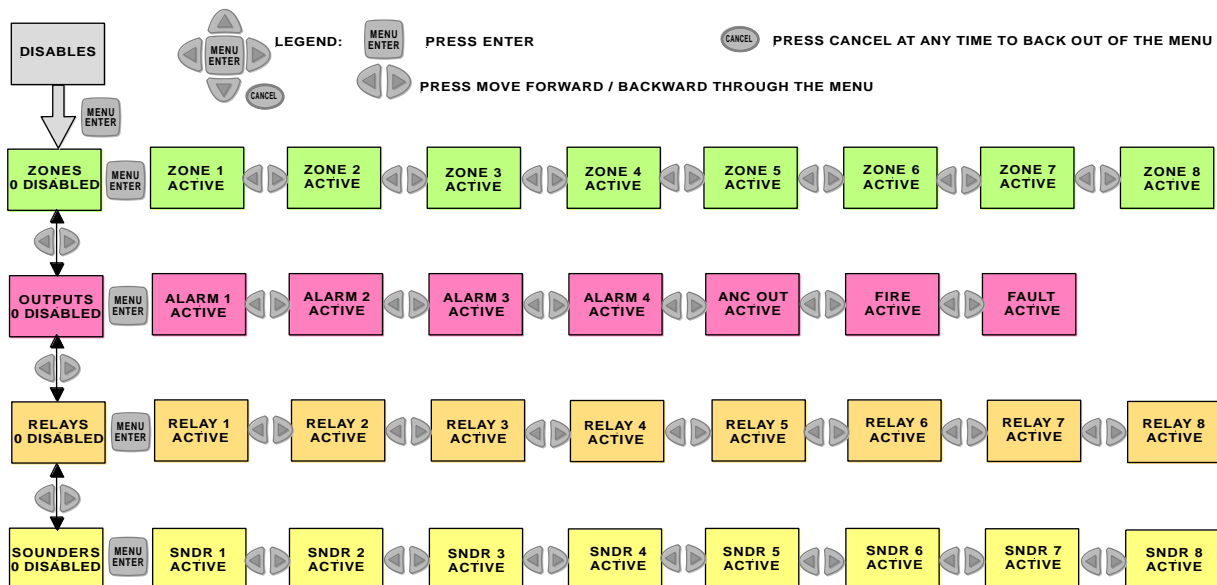
### 9.1 Level 1 to 3 Status Screens



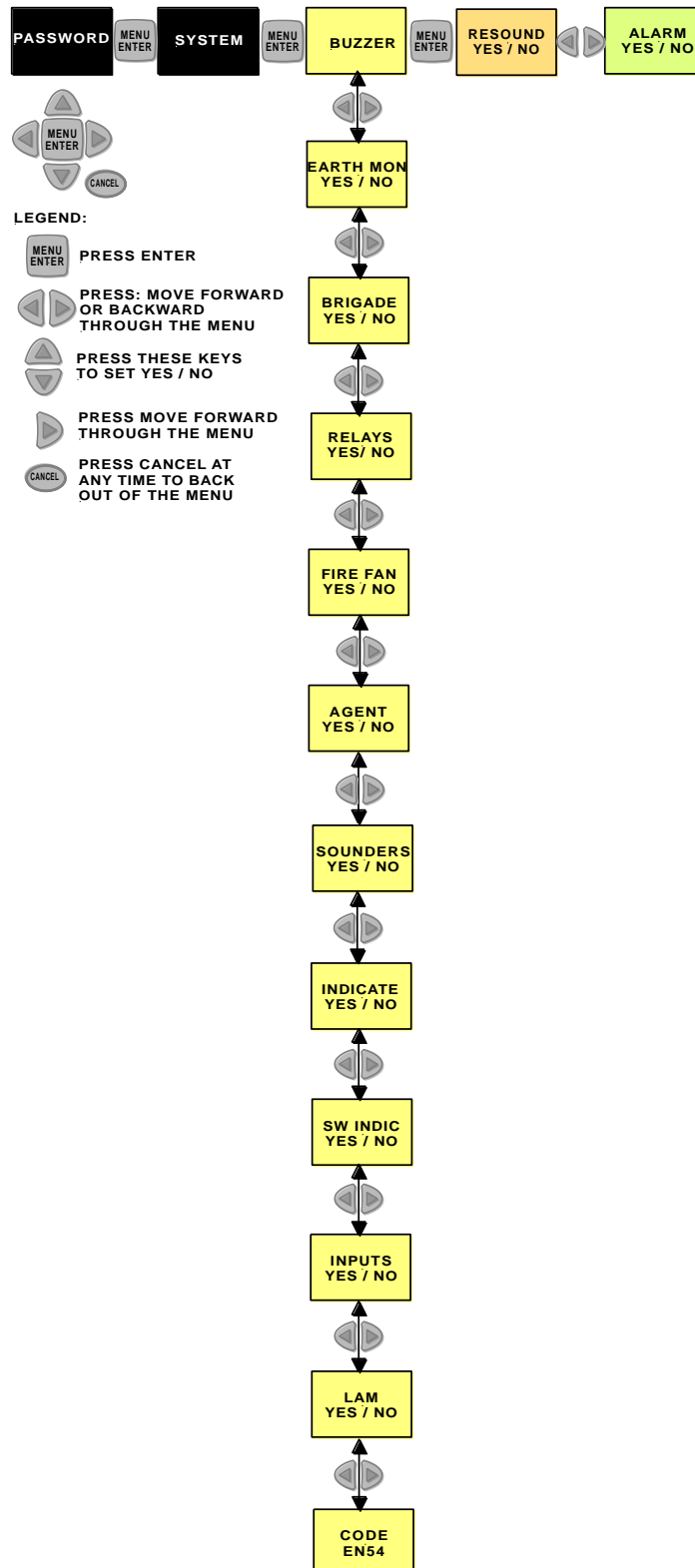
## 9.2 Level 2 Test Screens



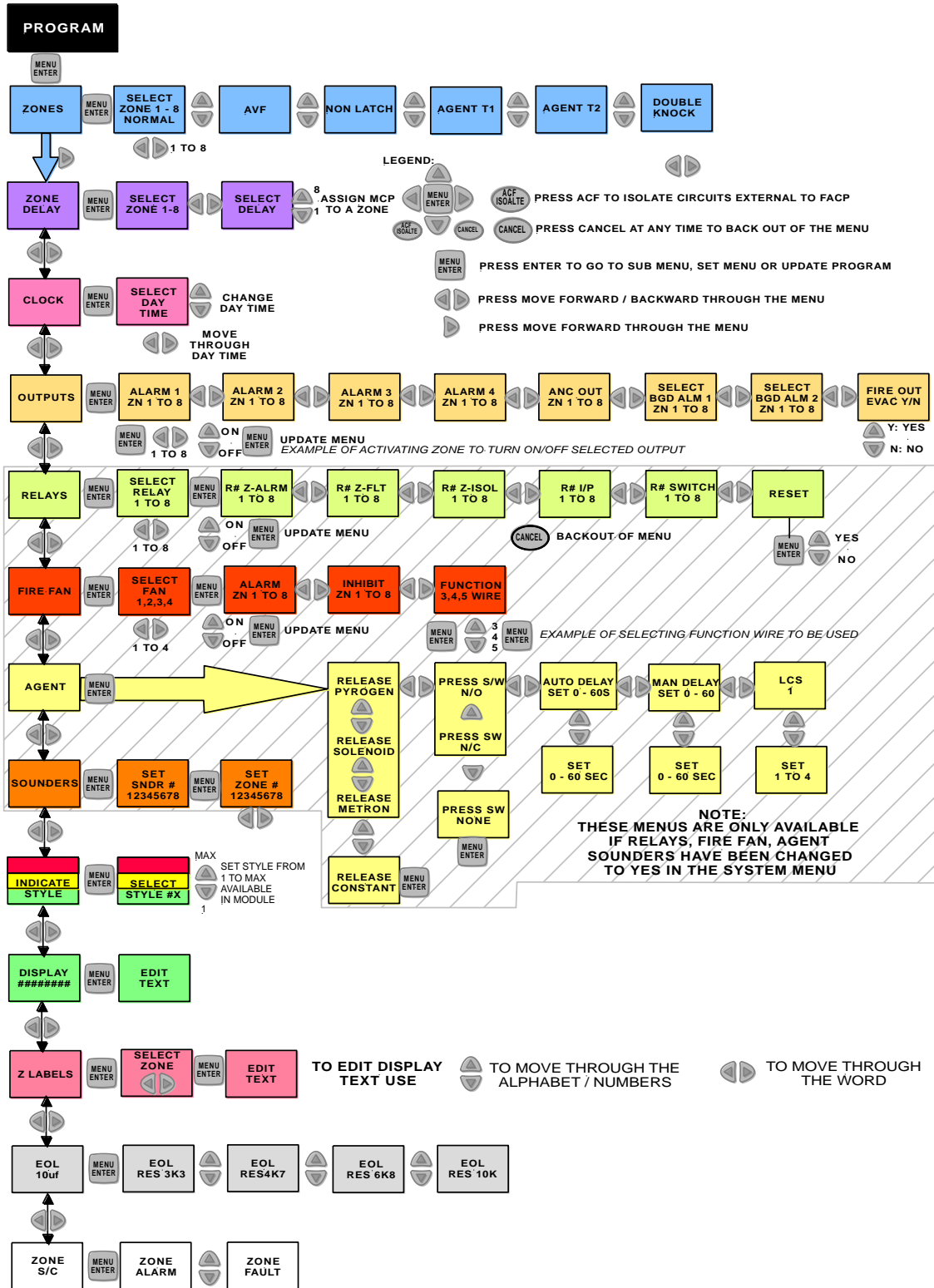
## 9.3 Level 2 Disable Screens



## 9.4 Level 3 System Programming



## 9.5 Level 3 Programming Menu



## 10 List of Compatible Devices

The following range of devices have been approved to be used with the **ZoneSense PLUS**.

<b>Apollo</b>	<b>Order Code</b>
Series 60, grade 1 heat (60deg Celsius)	55000-100AMP
Series 60, grade 2 heat (65deg Celsius)	55000-101AMP
Series 60, grade 3 heat (75deg Celsius)	55000-102AMP
Series 60, range 1 heat (80deg Celsius)	55000-103AMP
Series 60, range 2 heat (100deg Celsius)	55000-104AMP
Series 60, Type A Heat	201-0023
Series 60, Type B Heat	201-0024
Series 60, Type C Heat	201-0025
Series 60, Type D Heat	201-0026
Series 60, Ionisation Smoke	201-0027
Series 60, integrating Ionisation Smoke	55000-210AMP
Series 60, Photoelectric Smoke	201-0028
Base (for above detectors )	201-0029
Series 60, Duct Sampling Unit	214-0001
<b>AMPAC</b>	
FIRERAY 2000 Beam Detector	220-0004
ACP-01 Manual Call Point Red	213-0017
ACP-01 Manual Call Point Yellow	213-0018
ACP-01 Manual Call Point White	213-0019
ACP-01 Manual Call Point Green	213-0020
FP/2 Manual Call Point Red	213-0021
FP/2 Manual Call Point White	213-0022
<b>Hochiki</b>	
DCA-B-6OR MKV Heat Detector Type A	202-0050
DCC-A Type A Heat	202-0008
DCD-A Type A Heat	202-0039
DFE-60B Type B Heat	202-0009
DFJ-60B Type B Heat	202-0340
DCA-B-90R MK 1 Heat Detector Type C	202-0037
DCC-C Type C Heat	202-0010
DCD-C Type C Heat	202-0341
DFE-90D Heat Detector Type D	202-0011
DFJ-90D Type D Heat	202-0342
SIH-AM Ionisation Smoke Detector ( High )	202-0012
SIH-AMB Ionisation Smoke Detector ( Normal )	202-0025
SIJ-AS Ionisation Smoke Detector	202-0344
SIJ-ASN Ionisation Smoke Detector	202-0345
SLK-A Photoelectric Smoke Detector	202-0013
SLR-AS Photoelectric Smoke Detector	202-0046
YBF-RL/4AH4M Base for the above detectors	202-0014
YBN-R/4A base	202-0349
YBO-R4A base	202-0351
A100 Duct Probe with SLR-AS Photoelectric Smoke	202-0347
HF-24A MK 1 Ultra-Violet Flame Detector	202-0038
DH-98AS Duct Probe with SLR-AS Photoelectric Smoke	202-0348

## 10.1 Item Numbers

2580-1100	4 Zone ABS (BX1)
2580-1200	8 Zone ABS (BX1)
2580-0100	4 Zone Metal (BX10)
2580-0200	8 Zone Metal (BX10)
2510-9001	Ancillary Cabinet ABS (BX1)
<b>Add-On Panel</b>	
4310-0040	Input Board (Fit max of 1)
4310-0050	Relay Board (panel) (Fit max of 1)
4310-0060	Sounder Board (Fit max of 1)
4310-0070	Brigade Interface Board (Fit max of 1)
<b>Add-On External</b>	
4310-0037	LED Annunciator Mimic (LAM)
4310-0055	Relay Board (remote) (Fit max of 1)
<b>Accessories</b>	
ENC1851-A	Joiner for ABS multiple cabinets
ENC3016-A	Flush mount surround for metal (BX10) cabinet

## 11 Glossary of Terms

ACF:	ANCILLARY CONTROL FACILITY
ACKD:	ACKNOWLEDGED
AH:	AMP HOUR
AHU:	AIR HANDLING UNIT
ALM:	ALARM
ASE:	ALARM SIGNALLING EQUIPMENT
AVF:	ALARM VERIFICATION FACILITY
AZF:	ALARM ZONE FACILITY
AZC:	ALARM ZONE CIRCUIT
COM:	RELAY COMMON CONTACT (WIPER)
CIC:	CONTROLLER INTERFACE CARD
CN:	CONNECTOR
C/O:	CHANGE OVER CONTACTS
CPU:	COMMON PROCESSOR UNIT
DGP:	DATA GATHERING POINT
EARTH:	BUILDING EARTH
EOL:	END OF LINE
FACP:	FIRE ALARM CONTROL PANEL
FDS:	FIRE DETECTION SYSTEM
FFF:	FIREFIGHTER FACILITY FORMAT
FLT:	FAULT
FP:	FRONT PANEL
GND:	GROUND (0 VOLTS) NOT EARTH
Ia:	CURRENT DRAW IN ALARM
I <sub>da</sub> :	CURRENT DRAW IN ALARM WITH DEVICES ACTIVATED
I <sub>dd</sub> :	CURRENT DRAW IN ALARM WITH DEVICES DEACTIVATED
I <sub>q</sub> :	QUIESCENT CURRENT
I/O:	INPUT/OUTPUT
LCD:	LIQUID CRYSTAL DISPLAY
LCS:	LOCAL CONTROL STATION
LED:	LIGHT EMITTING DIODE
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
PCB:	PRINTED CIRCUIT BOARDS
P/S:	POWER SUPPLY
PSM:	POWER SUPPLY MODULE
REM:	REMOTE
SPOT:	SINGLE PERSON OPERATING TEST
TB:	TERMINAL BLOCK
VDC:	VOLTS DIRECT CURRENT



## 12 Definitions

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

**Alarm Signalling Equipment (ASE)** – circuitry that provides the necessary indication to the monitoring service providers.

**Alarm Verification Facility (AVF)** - that part of the FACP, which provides an automatic resetting function for spurious alarm signals so that they will not initiate Master Alarm Facility (MAF), or ACF functions inadvertently. Programming 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 emergency 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.

**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 fire indicator panel or where sub-indicator panel(s) communicate with a main fire indicator panel.

**Field Connections** - are connections made to FACP or ancillary equipment at the project 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.

**Master Alarm Facility (MAF)** - that part of the control and indicating 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 where appropriate. 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.

## 13 Battery Capacity Calculation

### INTRODUCTION

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.

### 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.

### 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)<br>Amps    | = |           |
|    | 24 x 0.8  |   |           |
| 2. | <b>Add</b> Quiescent Current of the System (Iq)               | = | Amps      |
| 3. | <b>Add</b> 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 h, 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 or, Agent Release is incorporated in the FACP, the battery shall have sufficient capacity to maintain normal system operation for 96 h. 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.



Devices de-activating when the system goes into alarm

Aircon Relays		20		2	20	40
Electric locks		100		4	100	400
Other						
		Idd=			Idd=	<u>440</u>

I Alarm ( Ia = Iq + Ida – Idd ) = mA

Ia = 107.9 + 720 – 440 = 387.9 rounded for calculation 390

Criteria	Example	
Battery capacity at end of battery life	$= ( Iq \times 24 ) + ( Ia \times 0.5 )$ <p>Note: the figure of 24 above should be 96 if Agent Release is used.</p>	$= ( Iq \times 24 ) + ( Ia \times 0.5 )$ <p>( rounded )</p> $= ( 100mA \times 24 ) + ( 390mA \times 0.5 )$ $= 2400mA + 195mA = 2595$
Note: □ 1,000ma = 1 Amp	= Ah	= 2.595 Ah
New battery capacity requirement	= Ah x 1.25	= 2.595 x 1.25
	= Ah	= 3.24 Ah
Rounded up to nearest available	Ah	3.2 Ah
	=	=

**PRIMARY POWER SOURCE CALCULATIONS**
**Battery Charger Current**

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

$$\begin{aligned}
 &= (5 \times I_q) + (0.5 \times I_a) &= (5 \times I_q) + (0.5 \times I_a) \\
 &= &= (5 \times 100) + (0.5 \times 390) \\
 &= &= 500 + 195 \\
 \text{Ah Requirement} &= \text{Ah} &= 0.695\text{Ah}
 \end{aligned}$$

**Battery Charging Current  
Required**

$$\begin{aligned}
 &= \text{Ah above} &= 0.695 \\
 &24 \times e &24 \times e
 \end{aligned}$$

$$\begin{aligned}
 e \text{ is the battery efficiency, } &= \text{A} &= .0363\text{A} \\
 0.8 &&
 \end{aligned}$$

**Power Supply  
Requirement**

Select the greater, 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  $I_a$ .

## 14 Trouble Shooting Chart

<b>Problem</b>	<b>Solution</b>
No Mains Power	Check mains Fuse
Supply fault LED illuminated	Check output voltage it should be set to 27.2V. Low = (less than 26.5V ) High = (greater than 28V ) 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 Loop not working	Refer to 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
Alarm Fault	Make sure you have a 10K Ohm EOL resistor fitted and a diode (1N4004) in series with the sounder

## 15 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	

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	

Postcode \_\_\_\_\_

Commissioning Representative: Name (*Print*)

\_\_\_\_\_

Signature:

## 15.1 Procedure

The following tests are the minimum that should 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.

## 15.2 System Information

		<i>Tick relevant box</i>	Yes	No	Applicable Not
<b>1. Ensure that all detectors used in the system -</b>					
i	Are listed in the operator's manual;	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>
iv	Are installed in an environment for which they are suitable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2.</b>					
	Check that the primary power source for the system has been provided in accordance with wiring regulations, and that the isolating switch disconnects the active conductors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.</b>					
	Check that the detector and the FACP locations are in accordance with the appropriate clauses of the code.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4. Alarm zone circuit:</b>					
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"/>	<input type="checkbox"/>
ii	Insulation resistance of all installation wiring measured in accordance with regulations or similar approved method and record the worst case result in the logbook.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>5.</b>					
	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"/>	<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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Yes No N/A

**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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii	Record tests on detector test record as required by the appropriate local authority and attach to the report.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>8.</b>	Check the operation of each manual call point and all other actuating devices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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**9. For Flame detectors perform the following**

i	Check that the number and type of detectors provide adequate protection of the area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii	Check that there are no 'blind' spots in areas protected.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii	Check that detectors are rigidly fixed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv	Check that detectors are properly connected to compatible control and indicating equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v	Check that detector lenses are clean and adequately protected from dust and extraneous radiation sources where these are present.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vi	Test the detection response to a flame source or simulated flame.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii	Check the back-up power supply capacity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii	Check the operation of alarm settings and indicators.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv	Check operation of remote indication of alarm and fault signals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v	Check the operation of airflow failure indicators.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vi	Check the operation of the system (signal) failure indicators.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vii	Check the isolate/reset functions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
viii	Check the fault and alarm test facilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**11. Test each ancillary function by operating the alarm zone facility(ies), associated with the ancillary function.**

Yes No N/A

**12. Alarm Signalling**

i	Check that the master alarm facility is able to receive the alarm signal by operating each alarm zone facility.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii	Check that the master alarm facility initiates an alarm to the fire control station equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**13. Battery Supply**

i	Check that both the primary and secondary power sources are of a suitable type and capacity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii	Perform a float voltage check according to the battery manufacturer's recommendation to ensure that the charger type and setting is correct.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Type of battery.		Float voltage/ required.	
Charger type.		Charger set at.	

<b>14.</b>	Check that all alarm zone facilities have been correctly labelled and that the alarm zone is immediately apparent from the labelling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<b>15.</b>	Check the 'as-installed' drawings are marked up, are consistent with the installation and the operator's manual is relevant to the installation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<b>16.</b>	Ensure the results of these tests are recorded in the system logbook.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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## 16 Statement of Compliance

Please PRINT

Name of building	
Address	
I/WE have installed in the above building	<i>Fire Alarm Control Panel Brand Name</i>
an alteration to the system manufactured by, OR	
a system manufactured by	
	<i>Name of Service Provider</i>
The system is connected to	

Monitoring service provider by a permanent , non-permanent  connection (*tick*)

Date of connection \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Ancillary equipment installed / connected to the control and indicating equipment.

(see Commissioning Of Cards and Boards) Yes  No

Current drain of ancillary loads powered from the FACP power supply \_\_\_\_\_

Primary power source voltage \_\_\_\_\_

Battery type and capacity \_\_\_\_\_ Manufacturer \_\_\_\_\_ AH

Is maintenance agreement held for the system? Yes  No

Operator's handbook supplied? Yes  No

Logbook supplied? Yes  No

'As-installed' drawings supplied? Yes  No

Portions of the building not protected by this system are; (*Please PRINT*)

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

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 in connection therewith are installed entirely in accordance with the current appropriate local requirements.

**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*

## 17 Installation Details

# Indicate with a number in brackets the number of actuating devices in concealed spaces.

Number and Type of Actuating Devices												
Alarm Zone #	Number of Actuating Devices per Zone	Thermal					Smoke Ion Photo	Flame		Manual Call Point	Other	
		A	B	C	D	E		IR	UV			
1												
2												
3												
4												
5												
6												
7												
8												

## 18 Certification Information

The ZoneSense PLUS is designed and manufactured by:

AMPAC PTY LTD

7 Ledger Rd

Balcatta

WA 6021

Western Australia

PH: +618 9201 6100

FAX: +618 9201 6101



Manufactured to: \_\_\_\_\_

Certificate of Compliance Number: \_\_\_\_\_

Equipment Serial Number: \_\_\_\_\_

Date of Manufacture: \_\_\_\_\_

## 19 Commissioning Of Installed Cards And Boards

Confirm a Card / Board is in use and functional at the time of commissioning by ticking the appropriate circle.

<b>Cards / Modules ( Front Panel Mounted )</b>			
<b>Type</b>	<b>Fitted Y/N</b>	<b>Checked Y/N</b>	<b>Function / Location</b>
Main Card BRD25MCB-A ( 4 Zone )	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Main Card BRD25MCB-B ( 8 Zone )	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Agent Release Module BDR25ARB-A Order Code: 4310-0012	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Fire Fan Module BRD25FCB Order Code: 4310-0022	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Switch and Indicator Card BRD25GIB-B Order Code: 4310-0030	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
General Indicator Card BRD25GIB-A Order Code: 4310-0032	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
<b>Remote</b>			
Agent Local Control Station BRD25ARB-D Order Code: 4310-0016	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
LED Annunciator Master BRD25GIB-E Order Code: 4310-0037	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
<b>Boards ( Backpan Mounted )</b>			
Input Board BRD25SIPB Order Code: 4310-0040	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Relay Board BRD25EWRB Order Code: 4310-0530	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Fan Termination Board BRD25FTB Order Code: 4310-0022	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Brigade Interface BRD25BBA-A Order Code: 4310-0070	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Sounder BRD25SOPB-A Order Code: 4310-0060	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Agent Termination BRD25ATB Order Code: 4310-0012	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Other ( List )	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	





## 21 Specifications

<b>Mechanical</b> Dimensions Metal Cabinet: ( mm ) Dimensions ABS Plastic Cabinet: ( mm ) Note: A Battery Box of the same dimension is available should the FACP be optioned to capacity.	500H x 400W x 140D 300H x 360W x 100D
<b>Environmental</b> Temperature: Humidity:	-5°C to + 55°C 25% to 75%
<b>Mains Input</b> Input Voltage: Protection ( Quick Acting Fuse ): Minimum Cable Requirements:	90 - 264VAC 1.25 Amp M205 Not less than 0.75mm
<b>Power Supply</b> Voltage: ( Set to 27.2V ) Power Supply Ripple Voltage: Power Supply Regulation: Power Supply Fault Indication                      Volts High ( at room temperature )                                      Volts Low Power Supply Output Current: Protection: Batteries / Battery Charger Charger O/P Voltage: Battery Type: Sealed Lead Acid Maximum Battery Capacity: Maximum Charger Current Limited: Battery Supply Current Limited: Battery Discharged Cut-off Voltage:	27.5VDC +/- 0.1VDC 100mV 2% 28VDC 26.5VDC 2Amps Current Limiting 4Amps  27.5 +/- 0.1VDC 2 x 12V Sealed Lead Acid 7AH 400mA 3A (PTC) 21VDC
<b>Main Card</b> Quiescent Current ( QI ) QI plus Zone 1 in Alarm Maximum Current Draw per Output (Current Limited)	40.5mA 90mA 500mA
<b>Zones</b> Maximum Number of Devices per Conventional Zone: Cabling Requirements: Fault monitoring:	32 as per EN54 (40 max) 2 core 1.5 to 2.5mm <sup>2</sup> O/C, S/C & EOL
<b>Outputs</b> Alarm (Current Limited) Alarm & Fault Monitored Current Limited Ancillary Alarm & Fault Relay Contacts Reset / Buzzer Auxiliary VDC	24VDC @ 500mA Max 24VDC @ 25mA Max 24VDC @ 1A 3sec pulse 100mA @ 24VDC 24VDC 500mA Monitored
<b>Inputs</b> Class Change, Alert and Spare	0VDC Closing Contact
<b>Communications</b> Internal to FACP External to FACP	RS485 RS485

**UNCONTROLLED DOCUMENT**

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