Ampac

Fire detection and evacuation solutions that save lives.

NZ 400

Fire Alarm Control Panel

(NZS4512.2003)

Installation, Commissioning & Operation

MAN 2337-6

Contents

1 Introduction

The NZ400 is an automatic Fire Alarm Control Panel available in Front or Rear Service.

Features

- Programming and interrogating the panel configuration
- Four detection zones plus DBA input
- Programmable zone response – only AVF
- Zones selectable Bell monitored outputs / Brigade calling
- Event Log (Last 8 events)
- Earth leakage, Mains present monitoring (selectable)
- Double Knock (grouping) zones

2 Specifications

Mechanical	
Material	1.2mm Mild Steel
Finish	Arch White Powder Coat
Dimension	320H x 350W x 80D mm
Weight	4.5kg (no batteries)
Electrical	
Mains Supply	230 VAC ± 10% @ 0.5A
Operating Voltage	12VDC
Supply Current	500mA (max)
Quiescent Current	85mA
Battery Capacity	1 x 12V 7Ahr
Input	
Detector Circuit (4)	4.8mA @ 24 VDC - Maximum Cable circuit Impedance 50
Output	
Bell 1	2A @ 12 VDC (fused)
Bell 2	2A @ 12 VDC (fused)
Auxiliary Power	800mA @ 12 VDC (fused)
Brigade	Type II SGD
Serial relay	Programmable (max 4)
Controls	**Indicators**
External Silence Alarms Evacuate	External Fire DBA Defect Normal Fire Zoned x 4
Internal Reset Buzzer Mute Walk / Self Test Bell Isolate Programming x 3	Internal Fire – Common DBA Defect – Common Normal Mains On Fire Zoned x 4 Battery Defect Bell Defect System Defect Defect Zoned x 4 Self Test Walk Test 7 segment display

Approvals	NZS4512:2003, Opus

3 System Description

The following description does not relate to specific cabinets as the size of each cabinet will vary with the amount of hardware fitted.

The NZ400 is available in two standard formats – front service and rear service. Both of these systems are essentially the same and differ only in the placement of system components

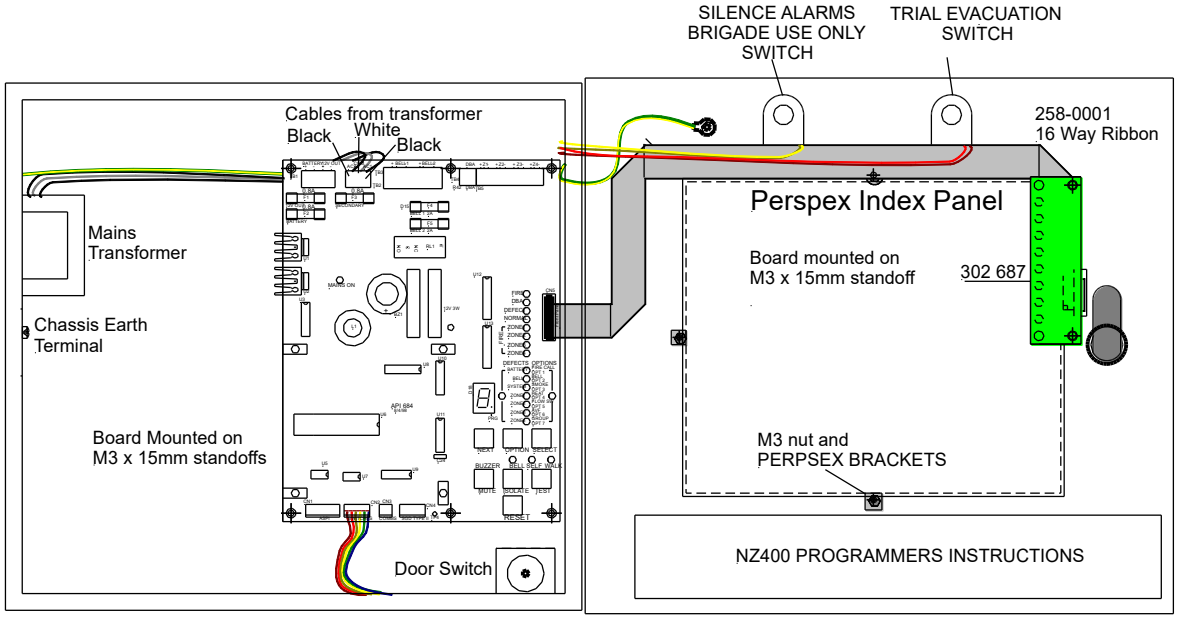

Figure 1: Front Service Mounting Detail

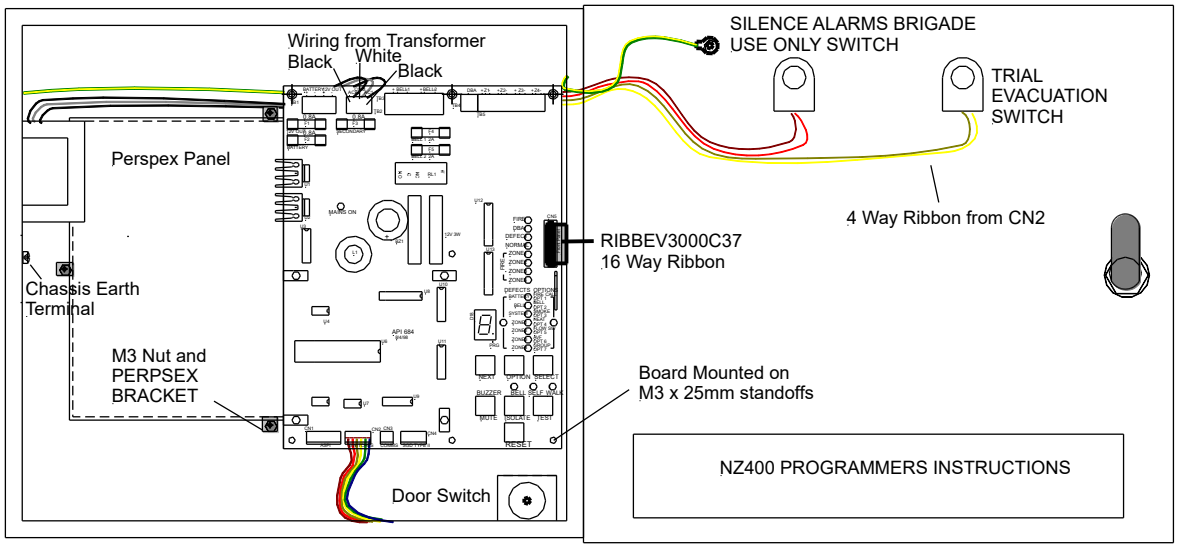

Figure 2: Rear Service Mounting Detail

3.1 Main System Board 302-6840

All circuitry of the NZ400 with the exception of the front display LED's, PCB 302-687, is housed on a single PCB (302-6840).

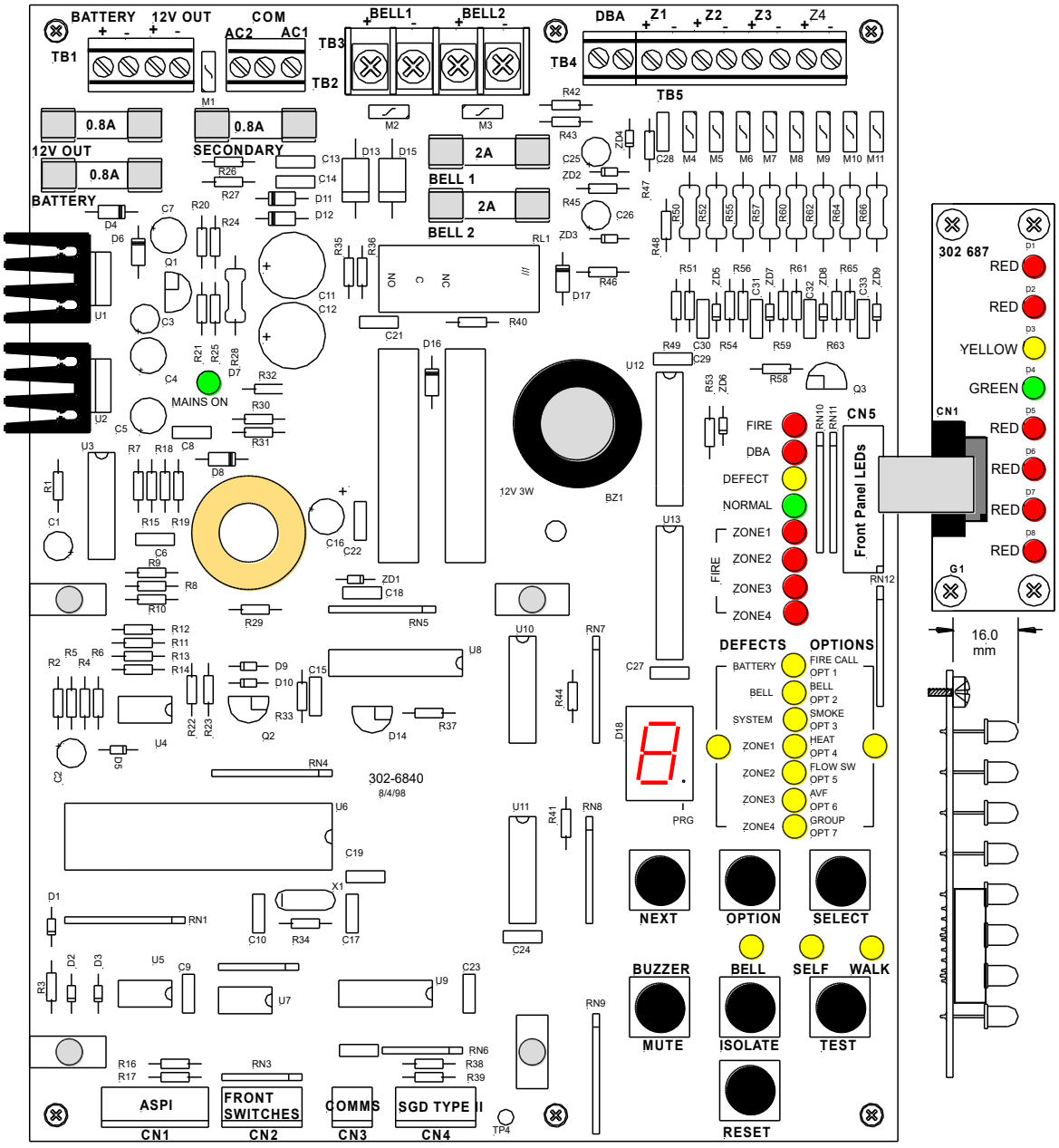

Figure 3: Main System Board Layout and Front Panel LED Board

3.1.1 Bell Circuits

The NZ400 provides a monitored bell output circuit split to drive two x 2Amp circuits (See Table 4.2). When monitoring is enabled these circuits each require a 10K EOL resistor to give a system normal indication. If either circuit is open or shorted, a defect signal is generated and the "BELL" defect LED is illuminated. See section 4 for connection details.

3.1.2 Bell Isolate (Internal)

This facility allows the fire alarm system to be tested without disturbing the building occupants. The bell outputs are isolated and returned to normal state by alternate pushes of the 'Bell Isolate' switch. The yellow LED above the internal bell isolate switch indicates when the bell is isolated. This switch is monitored. See section 3.1.5.

3.1.3 Walk Test

This function is initiated by a single press of the 'TEST' button. The LED indicator 'WALK" above the 'TEST' button indicates when the system is in walk test. While the system is in the walk test mode the detectors can be operated in the field and the system will sound the bells for 3 seconds and then reset. To restore the system to normal operation, press the switch again and the walk test indicator will turn off. This switch is monitored, See section 3.1.5.

Note that pressing the 'TEST' switch again quickly (within two seconds of the first press) will activate the self-test function. If this occurs press the switch again to return to normal.

3.1.4 Self Test

The self-test is activated with a double press of the 'TEST' button. The LED indicator 'SELF' above the 'TEST' button indicates that the system is in self-test. The self-test function will sequentially test each zone by placing it into alarm and defect. On completion of the self-test the system will automatically return to its normal mode of operation. This test may be terminated at any time by pressing the 'TEST' button again.

This function will inhibit brigade calls and sounding the bells during the test.

3.1.5 Door Interlock

The door interlock prevents system controls from being inadvertently left in an off normal position with the outer door closed. If any of the monitored switches either on the NZ400 or connected Signal Generating Device are not in their normal state when the door is closed, the buzzer will sound to alert the operator.

The following switches are monitored: NZ400 - Walk Test and Internal Bell Isolate, SGD – Test and Isolate. If the Walk Test or Internal Bell Isolate is active when the door is closed, they automatically return to their normal state after ten (10) minutes.

3.1.6 Defect Indicators

Indicators are provided for the following defects.

- Battery Fault. This indicates if the battery voltage is below 12.1 volts, or the battery is disconnected or the battery has failed the discharge test.
- Bell Fault. This indicates an open or short circuit on the bell outputs.
- System Fault. This indicates one of the six following fault conditions.

When a fault has occurred the numeric display will indicate the condition. If more than one system fault condition exists only the fault with the lowest number will be displayed. (4 & 7 not used)

1. Processor failed internal check sum check
2. EEPROM damaged or corrupt
3. DBA circuit fault
5. Power converter for detectors failed
6. Earth fault
8. Mains power has failed

3.1.7 DBA Input

An input connection is provided for connecting to an external device that has a Direct Brigade Alarm (DBA) output, e.g. sprinkler systems. A short circuit on this line will cause the DBA LED to light and the system bells to be energised. This input is monitored for normal condition with a 10K resistor. An open circuit will cause a DEFECT status.

3.1.8 Power Supply

The system has an on board linear power supply providing 13.5V DC at 0.5A for system power and charging the battery. The system incorporates two test functions, controlled by the CPU. The first test is performed every sixteen seconds and checks to see whether the battery is connected. The second test decreases the power supply output voltage for forty-five minutes, every forty-eight hours to check the condition of the system battery. If the battery voltage falls below 12.1V during either test, a defect signal is generated and the battery fault LED is illuminated. The defect will only be reset on a successful battery condition test or by operation of the ‘RESET’.

3.1.9 Mains On Indicator

This LED is illuminated when the mains supply is connected and operational.

3.1.10 Fusing

The NZ400 main board has five (5) fuses:

1.	F1	External (12V out)	0.8A
2.	F2	Battery fuse	0.8A
3.	F3	AC input fuse (secondary)	0.8A
4.	F4	Bell 1 Fuse	2 A
5.	F5	Bell 2 Fuse	2 A

3.1.11 Zone circuits

All four detector circuits can accept smoke detectors, heat detectors, manual call points or non-latching inputs e.g. flow switches. Detectors or manual call point types used are subject to the compatibility limitations as described in section 4.

Detection of a fire condition on one or more of the Zone circuits will cause the system to go into alarm within one second. Devices such as smoke detectors, can, when signalling, go through an Alarm Verification Facility (AVF) process. As such, when a detector goes into alarm, it is reset and not monitored for seven to eight seconds, if an alarm is still present after this time, the system will latch into alarm.

The AVF function may be disabled if desired. See section 5 for details on setting options.

When the zone is configured for a flow switch (non-latching) the system will respond to an increase in detector zone current. To signal an alarm condition a resistor in the range of 220Ω to 560Ω should be wired in series with the contacts.

3.2 Batteries

The NZ400 system is designed to accept one x 12V, 7 AH sealed lead acid battery.

4 Installation and Initial Operation

4.1 Unpacking and Inspection

Carefully check packing before unpacking goods for any transit damage. Unpack the goods and check both externally and internally for any loose or damaged components that may affect the appearance, installation or operation of the goods. The index is supplied loose.

4.2 Anti Static Precautions

To prevent damage to system components please ensure that you are correctly electrostatically earthed before touching or handling any of the wiring or printed circuit boards within the system.

4.3 Installing the NZ400

Do not apply power or connect the battery during this procedure.

1. Unpack NZ400.
2. Check for transit damage.
3. Have the Index Panel engraved as necessary.
4. While keeping all metal filings away from PCB's drill all cable access and mounting holes.
5. Provide insulation grommet to mains cable entry hole.
6. Re-install the index panel. This will require the removal of the main board in a rear service system.
7. Mount the unit into position.
8. Feed cables into the unit.
9. Install any option cards and/or SGD.
10. Connect mains cabling to the mains terminal block. Ensure incoming mains is properly earthed using stud provided.

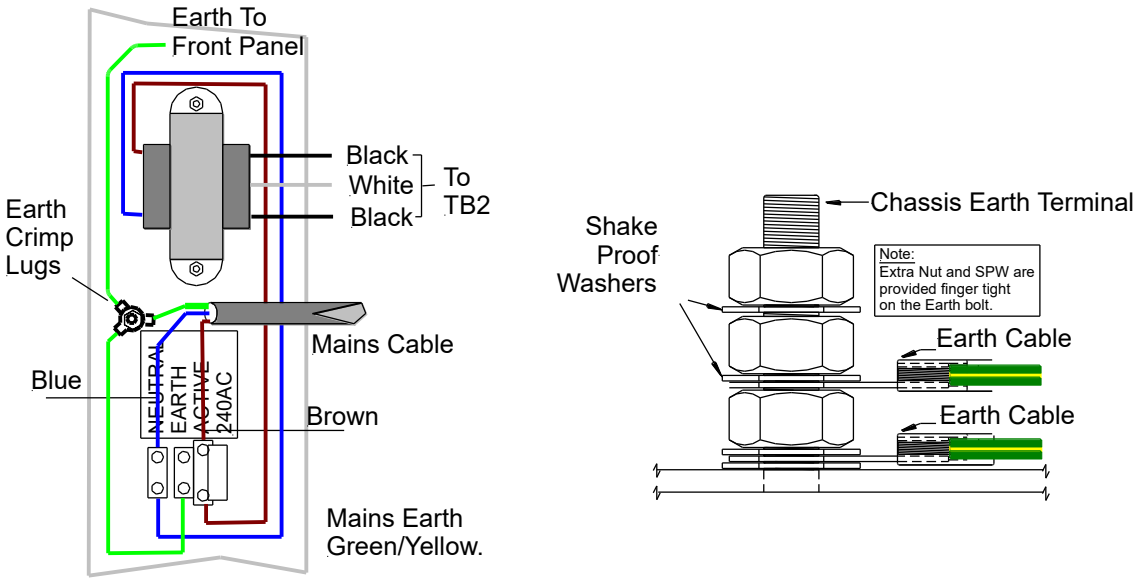

Figure 4: Wiring the Mains

11. Anchor incoming mains cable with 'P'-clip provided.

12. Connect detector and sounder cabling.

13. Connect ancillary cabling.

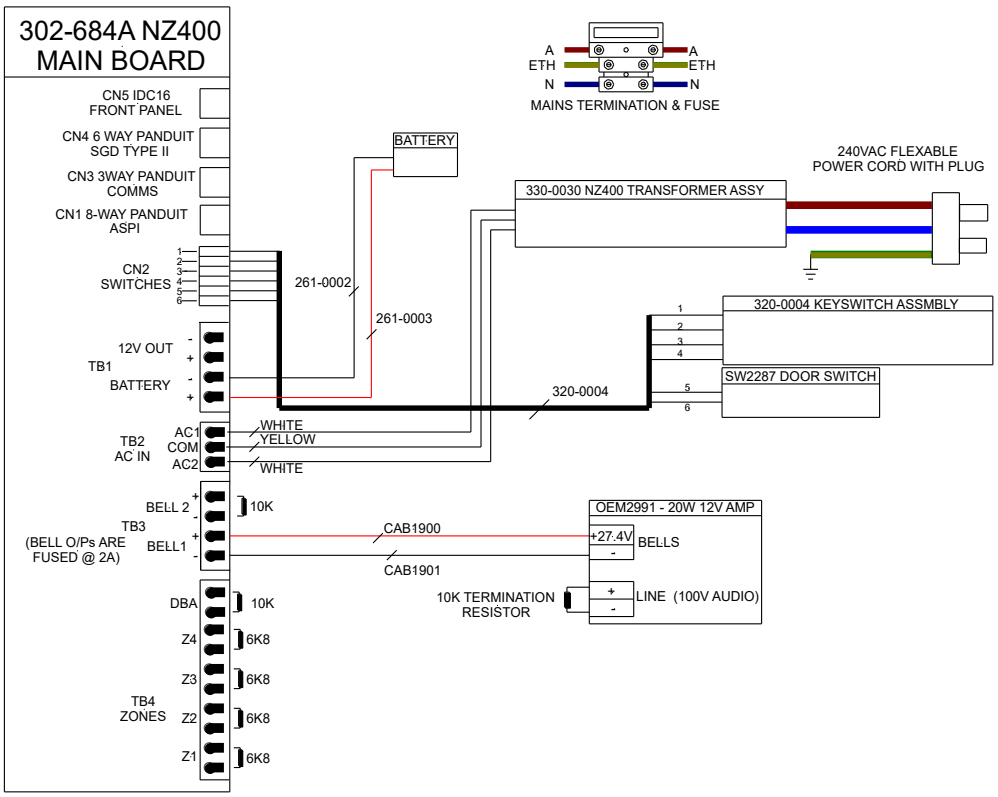

Figure 5: Cabling in the NZ400

4.4 Connecting Devices

4.4.1 Detectors

A sample of the detectors approved for use with the NZ400 are listed below. (See Appendix A)

Detector Type	Iq	Order Code
Apollo Series 65 Ionisation Smoke Detector	45A	55000-217
Apollo Series 65 Photoelectric Smoke Detector	45A	55000-317
Orbis Photoelectric Smoke Detector with Flashing LED	120A	201-0501
Ampac Thermal Detector Blue Indicating	40A	4255-0300
Ampac Thermal Detector Yellow Indicating	40A	4255-0400
Ampac Fireray Beam 2000	8mA	220-0004
Ampac Fireray Beam 50R	4mA	220-0005
Ampac Fireray Beam 100R	4mA	220-0006

Note:

1. Iq = Quiescent Current Draw
2. The maximum current available for any one Detector Circuit is 4.8mA @ a line voltage of 24VDC. As a guide to approximately determining the maximum number of detectors allowable on any one circuit, keeping in mind any losses, multiply the Iq of the type/s involved by the number required and if applicable (more than one type involved) add the resultants
3. Rate of Rise Heat Detectors are also available

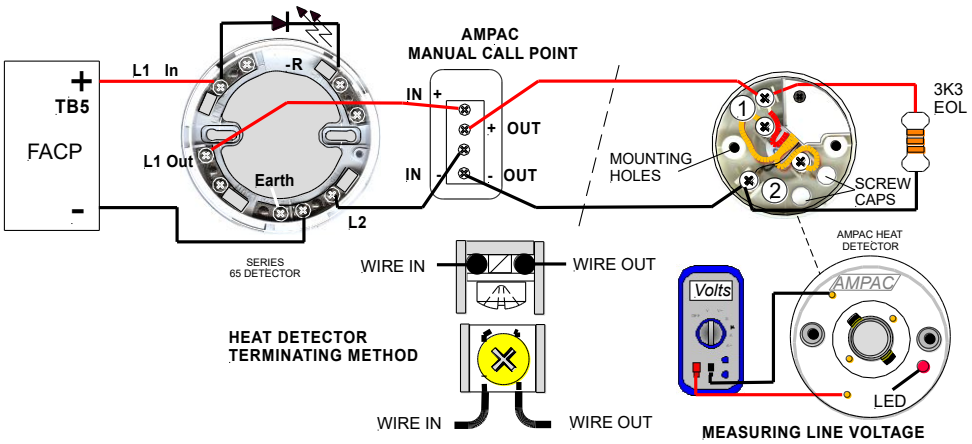

Figure 6: Example of Detector & MCP Wiring

The zone circuit must be terminated with an end of line resistor with a value of 3.3KΩ (2% tolerance or better, power rating 1/4W)

4.4.2 Detector Limitations

- All indicating heat detectors draw a small monitoring current and this limits the number detectors that can be connected to a given zone circuit.
- Detectors are not intended for use in areas subject to higher than normal corrosive environments or where corrosive gasses may be present.

4.4.3 Manual Call Points

Type	Quiescent Current	Order Code
Ampac Manual Call Point	40µA	4255-700

Connect as shown above.

4.4.4 Bells and Sounders

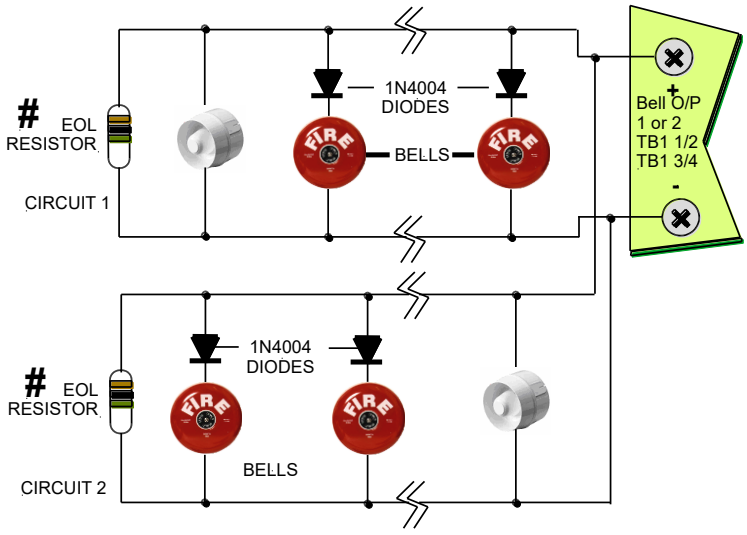

Figure 7: Wiring Bells and Sounders

 # Note: For a one bell circuit a 10K EOL is required on the system on bell output 2 or bell output 2 monitoring can be disabled in the Common System Options.

Two bell/sounder circuits are provided, capable of driving a combined load of 3.75 Amp (0.25 A is reserved for the system-operated light). These lines are monitored using a small current in reverse polarity to normal. For this reason it is necessary to connect bells via diodes and

observe bell/sounder polarity, 1N4004 diodes are recommended, as shown in the above diagram. If required these lines can be split to provide three or four bell circuits total, as shown, however if this is done the end of line resistor must be changed. See table below for further detail.

	Bell Output 1				**Bell Output 2**			
	First Circuit		**Second Circuit**		**First Circuit**		**Second Circuit**	
No of Circuits	EOL	Current Available	EOL	Current Available	EOL	Current Available	EOL	Current Available
1	10K	2A	-	-	*10K	-	-	-
2	10K	2A	-	-	10K	1.75A	-	-
3	22K	1A	22K	1A	10K	1.75A	-	-
4	22K	1A	22K	1A	22K	0.875A	22K	0.875A

4.4.5 Compatible Devices

Order Code	Description
206-0002 *	Bell 12VDC Red 150 mm.
205-0006 *	Horn Siren 12VDC 200mA Red.
205-0002 *	AS2W Flush sounder White 12/24V 15mA.
205-0001 *	AS2R Flush sounder Red 12/24V 15mA.
205-0009	Vara Sounder white AS2220 Evac Tones
205-0011	Vector Sounder white AS2220 Evac Tones
205-0062	Vantage Sounder AS2220 Evac Tones (Red)
205-0063	Vantage Sounder AS2220 Evac Tones (White
205-0066	Vantage Combi Sounder AS2220 Evac Tones (Red)
205-0067	Vantage Combi Sounder AS2220 Evac Tones (White)

**** Note: these devices do not comply with NZS4512 2003***

4.5 20Watt Amplification & Evacuation Generation

4.5.1 Overview:

The **20W 12V** Amplifier is one of a range of Amplifiers that can be factory or retro-fitted to the Ampac range of Fire Alarm Control Panels (FACP).

The Amplifier has been designed to generate the Evacuation tone and verbal message as specified by NZS4512: 2003 & 2010.

The Amplifier output is short circuit protected, is capable of driving up to 20W of power to PA loud speakers and can be directly mounted into the NZ400.

The amplifier's 20W 100Vrms Bell line is fully monitored via the panel's Bell circuit and draws practically no current (less than 0.2uA) in the quiescent state, and appears transparent to the FACP. The amplifier is activated when the Bell circuit voltage polarity is changed to the alarm state.

4.5.2 Specifications:

Targeted Panel:	**NZ400.**
Board Dimensions:	97mm x 74mm. Height = 35mm from bottom side of PCB.
Mounting Dimensions:	83mm x 57mm (compatible with existing mounting plate)
Operating Voltage:	9.6-14.4Vdc, nominal 12.2Vdc
Operating Current:	2.0A @ 12.2Vdc
Power Output:	20Wrms @ 13.7Vdc Supply 16Wrms @ 12.2Vdc Supply
Tone:	Evacuation tone and verbal message, compliant to NZS4512:2003 & NZS4512:2010
Monitoring:	10K 2W EOL resistor

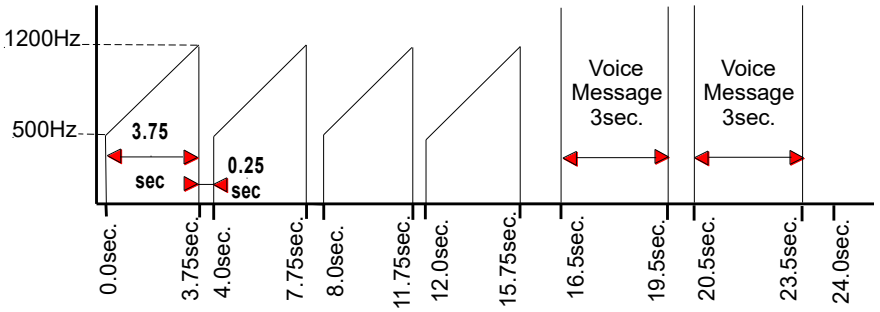

Figure 8: NZS4512 Evacuation Signal with Voice Messaging

4.5.3 Operation:

The Amplifier is connected to the FACP Bell circuit output as shown in the connection diagrams. Bell terminals '+' and '-' are connected to the corresponding '+' and '-' terminals on the amplifier.

In the 'Normal' state, the FACP monitors the 100V line 10K 2W EOL resistor by applying an inverted voltage to the amplifier input terminals. In this state the amplifier connects the 10K 1W EOL line resistor to the Bell input. A 10K 2W EOL resistor must be used across the 100Vrms line for correct operation of the amplifier monitoring circuit.

In the 'Alarm' state, the FACP reverses the bell voltage causing the amplifier to activate and output a repeating 'Evacuation Tone followed by a voiced Evacuation Message' onto the 100Vrms loudspeaker circuit. The amplifier is NOT monitored during the 'Alarm' state.

If the amplifier output is overloaded, or the supply voltage becomes 'Off-Normal', the amplifier will signal a defect by turning on the Defect/Fault LED (see below).

Fault LED	**ON LED**	**Defect Description**

Off	Off	Amplifier inactive
Off	Steady	Amplifier active
Steady	Flashing	Supply Voltage below 10V or above 15V
Flashing	Steady	Amplifier output is overloaded

The 100Vrms Line may have a maximum of two spurs. For these configurations an EOL resistor of the appropriate value must be installed at the end of each spur. (See Below).

Number Of Spurs	**Number Of Spurs**
1	1 x 10K 1W
2	1 x 22K 1W on each spur

4.5.4 Installation Criteria

Capacitive-coupled 100Vrms PA Speakers must be used with the 20W Amplifier. The capacitor must be bipolar and able to withstand 250V peak line voltage. The value should be around 1uF per watt of power for each speaker.

100Vrms speaker wiring must be separated from ELV (Extra Low Voltage) wiring.

Loading of the 100Vrms line must not exceed 20W.

An excessive load will cause the Amplifier to current limit and shutdown. The symptoms for this may be interruptions in the audio output and two or more amplifiers broadcasting out of synchronization.

Loading of the bell output must not exceed the maximum fuse (FACP Bell Circuit Fuse = 2A) or relay (20W Amplifier Line Relay maximum contact current = 3A) rating.

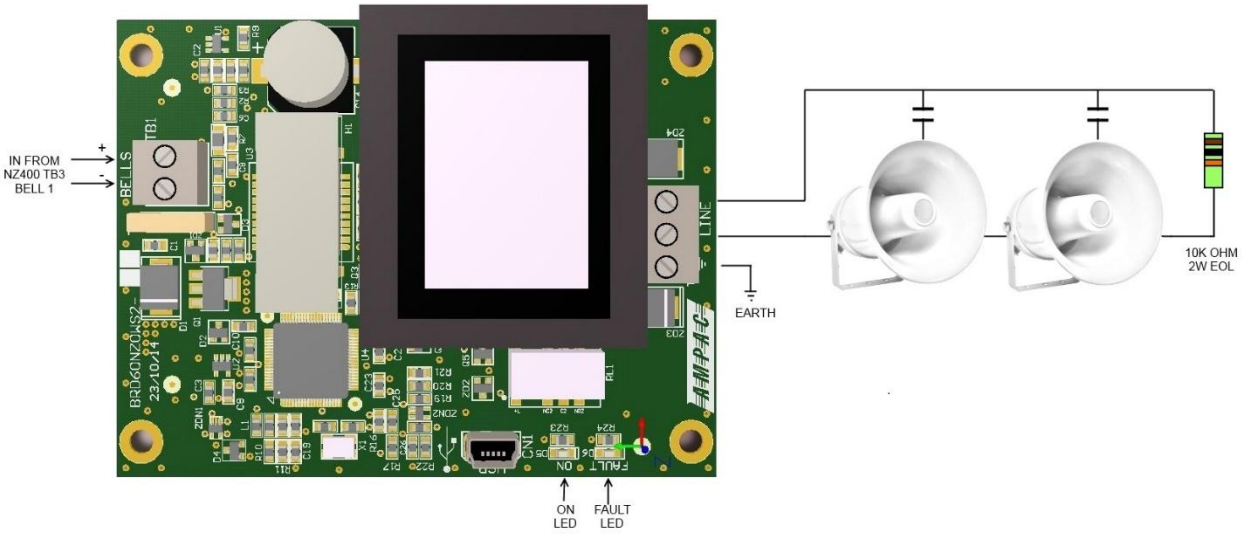

Figure 9: Basic Speaker Wiring Diagram

4.6 Connecting Brigade Interfaces

The NZ400 system is designed to be connected to the brigade using a 302- 6780 SGD Type II.

To install the SGD in an NZ400 service system;

- Mount the SGD on the main PCB using the plastic snap-in standoffs provided, as shown below.
- Connect the SGD to the main board using the six way ribbon provided. Connect the cable from CN4 on the main board (marked SGD type II) to CN2 on the SGD (marked Fire System). Run the cable under the SGD board to avoid obscuring the switches. Screw earth lug of earth wire under board mounting screw in the lower left corner. Connect the other end to the SGD earth point.
- Connect the Line Transmission Interface just prior to testing with the brigade service.

Do not connect the Door Switch to the input of the SGD as it MUST be connected to the Main Board.

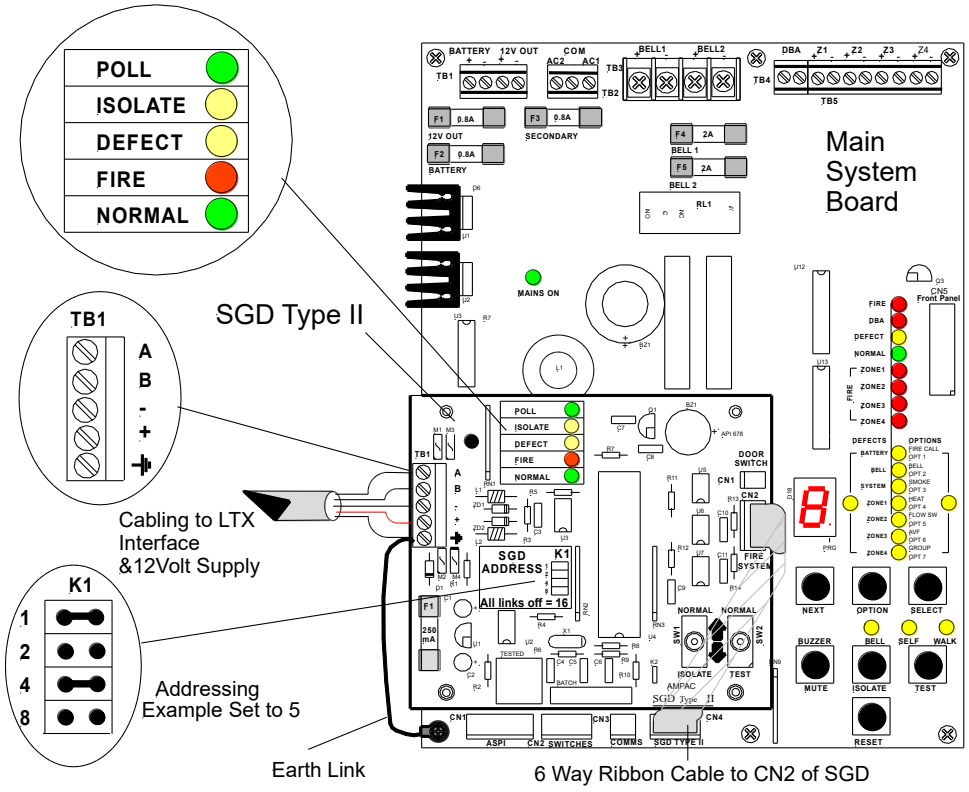

Figure 10: SGD Mounted to the Main System Board

Link K1 Address Setting

Set the links to the assigned binary address.

Link K2

NOT Used.

Note: *When the SGD is ordered with the panel, the SGD will be fitted and programmed prior to delivery.*

Test Sequence

As a minimum test the monitoring in accordance with the LTX SGD Input Interface Specifications.

4.7 Relay Outputs

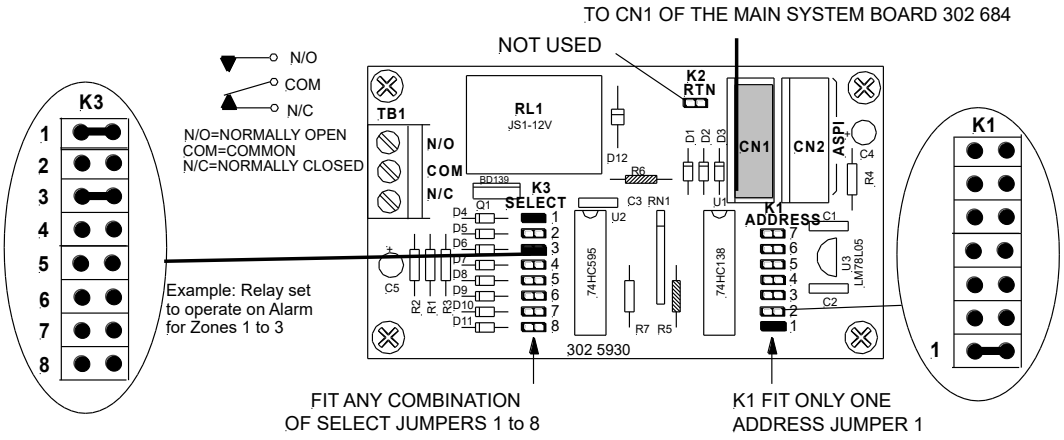

Figure 11: ASPI Relay Board Layout

4.7.1 ASPI Relay Board

The ASPI (AMPAC Serial Peripheral Interface) relay board will provide the NZ400 system with a 5 Amp relay contact for use by ancillary devices.

A fire zone or certain system functions can activate the relay. Refer to table below.

To install the 302-5930:

- Power the system down and mount the board on the supplied clip in standoffs.
- To connect a single ASPI board to the NZ400, plug one end of the eight way cable provided into CN1 of the ASPI board and the other end into CN1 of the 302 6840. To add more than one ASPI Board onto a NZ400 connect CN1 of the second ASPI board to CN2 of the first, etc. A maximum of four ASPI boards is permitted per NZ400. Fit the ASPI line termination plug to CN2 of the last board on the ASPI.
- On the ASPI board there are a number of options available. Link K1 sets the address of the board, only address one (1) may be selected for the NZ400. Link K3 sets the conditions that will activate the relay, any combination is allowable. Link K2 must be left open.

K3 Select	Operating Condition
1	Fire Zone 1
2	Fire Zone 2
3	Fire Zone 3
4	Fire Zone 4
5	Fire Group
6	Not used
7	Defect
8	Fire Common

Note: Link settings in Figure 11 above are; Zone1 and 3 will activate the relay

- Turn the system on and test relay activates when the selected function is set to on.

5 Options

5.1 Available Modes / Options.

There are seven modes each containing up to seven option sets that can be selected by the user. Once the programming option mode is selected the LED will display 1 and the operator can then step through them (1, 2, 3, 4, 5, C, F, U, d', E, P) to select the parameter to be set or changed. Changing the options is outlined in Section 5.3.

Mode Option Summary:

1: Zone 1

2: Zone 2

3: Zone 3

4: Zone 4

5: Grouping

C: Common System Settings

F: Defect Reporting

U: Increase Voltage

d': Decrease Voltage

E: Exit without Saving

P: Save program / changes / settings and exit

The LED's to the right of the display indicate what option is selected and whether or not it is set to on or off, long flash for ON and short flash for OFF.

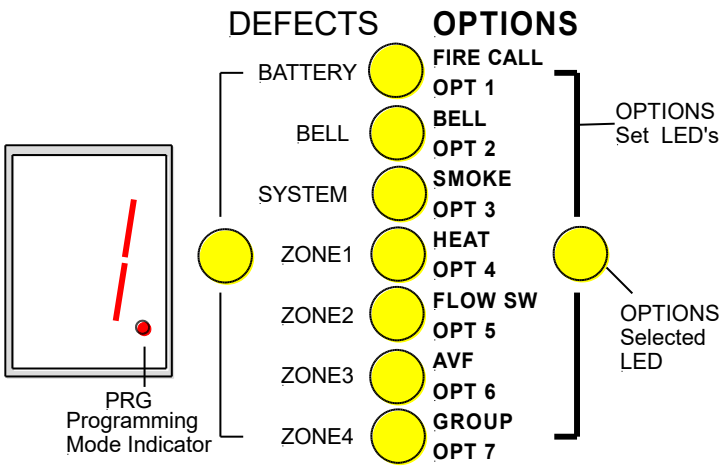

Figure 12: Programming Indications

5.1.1 Zone Options.

Display reads 1,2,3 or 4

Option	Function	Factory Setting
FIRE CALL/OPT1	When in alarm the zone will signal the SGD	ON
BELL/OPT2	When in alarm the zone will initiate Evac signals	ON
SMOKE/OPT3	Allows Smoke detectors and indicating Heats / MCP's	ON
HEAT/OPT4	Not used with NZS4512:2003 version	ON
FLOW SW/OPT5	Set the zone to flow switch type. Non latching contact.	OFF
AVF/OPT6	Set Automatic Verification Facility (gating) on.	OFF
OPT7	Send signal to group facility. *	OFF

***** *A group is one or more zones. The group will only be considered to be in alarm when all of the zones within the group are in alarm.*

5.1.2 Group Options.

Display reads 5.

Option	Function	Factory Setting
FIRE CALL/OPT1	If all zones in the group are in alarm SGD is signalled	ON
BELL/OPT2	All zones in the group, in alarm, initiate Evacuation	ON
SMOKE/OPT3	Not used	OFF
HEAT/OPT4	Not used	OFF
FLOW SW/OPT5	Not used	OFF
AVF/OPT6	Not used	OFF
OPT7	Not used	OFF

5.1.3 Common System Options.

Display reads C.

Option	Function	Factory Setting
FIRE CALL/OPT1	Allows fault monitoring of first bell output	ON
BELL/OPT2	Allows fault monitoring of second bell output.	ON

SMOKE/OPT3	Allows Direct Brigade Alarm	ON
HEAT/OPT4	Allows fault monitoring of incoming mains.	OFF
FLOW SW/OPT5	Monitor for earth leakage faults	OFF
AVF/OPT6	SGD Fitted	OFF
OPT7	Sound buzzer on faults	ON

5.1.4 Defect Reporting Options.

Display reads F.

Option	Function	Factory Setting
FIRE CALL/OPT1	Allows battery fault to be sent to SGD	OFF
BELL/OPT2	Allows bell fault to be sent to SGD	OFF
SMOKE/OPT3	Allows system fault to be sent to SGD	OFF
HEAT/OPT4	Allows zone 1 defect to be sent to SGD	OFF
FLOW SW/OPT5	Allows zone 2 defect to be sent to SGD	OFF
AVF/OPT6	Allows zone 3 defect to be sent to SGD	OFF
OPT7	Allows zone 4 defect to be sent to SGD	OFF

5.2 Displaying the Current Options

To display the options status from the normal state, press the ‘OPTION’ key. The ‘OPTIONS’ LED will illuminate to indicate that the options are being displayed. Press the ‘NEXT’ key to step through each group of options.

To cancel the display press ‘SELECT’ or ‘RESET’ and thirty seconds after the last key press the display mode will be automatically cancelled.

5.3 Changing the Options

5.3.1 Entering Programming Mode

Before any changes to the configuration of the system can be made, it is necessary to put the system into program mode. To do this press the ‘SELECT’ then the ‘OPTION’ keys. The numeric display will illuminate. It is now necessary to enter the pass code. (The pass code is 411) To enter the pass code press the ‘NEXT’ key until the correct number (4) is displayed, then press the 'SELECT' key. Repeat this sequence until entire code (1), (1) has been entered.

An incorrect entry will cause the sounder to sound a long beep and the display to cancel.

After the pass code has been successfully entered the 'PRG' light in the bottom right corner of the numeric display will illuminate to indicate that the programming mode is active, see Figure 12.

5.3.2 Changing Zone, Group and Common System Options.

Now that the system is in programming mode the 'NEXT' button will step sequentially through the program option sets (1, 2, 3, 4, 5, C, F, U, d', E, P) When the last program option set is reached the display will loop back to the first. Once in the required option set press the 'OPTION' button until the required option flashes. Press the 'SELECT' key to change the option setting.

When the last option is reached pressing the 'OPTION' button loop back to the first option.

Some options cannot be selected whilst others are active. This applies to the HEAT, SMOKE and FLOW SWITCH options. If either/or the SMOKE and / or HEAT option is active for a zone then the FLOW SWITCH option may not be selected and vice versa.

Note that the LED's on and off times for an active option are different from an inactive option. A long flash indicates the option is active, while a short flash indicates the option is in active.

5.3.3 Changing the Battery Voltage.

Note: The battery voltage is factory set and should not normally be changed on site. However it may be necessary to do so if the EEPROM is corrupted or damaged.

Note: the battery must be removed for an accurate reading.

To increase the battery charge voltage, press the 'NEXT' key until U is displayed. Press the select key until the required voltage is reached. It is recommended that changes be made slowly to allow the system to adjust the voltage.

Reducing the battery charge voltage is similar to increasing the voltage except press the next key until d' is displayed

5.3.4 Saving the Options.

To save the options, press the 'NEXT' key until P is displayed. Press the 'SELECT' key. The system will save the program options and return to normal operation.

Confirmation of the action is given by a double beep.

5.3.5 Exiting without Saving.

To exit with saving the changes press 'NEXT' until E is displayed. Press the 'SELECT' key. Note that pressing reset or leaving the system without pressing keys for thirty seconds will also allow the system to terminate the option setting procedure and return to normal.

6 Event Log

The event log will capture defect and alarm events that have occurred on the system since the last reset.

To display the event log from the normal state press the ‘OPTION' key twice. The ‘OPTIONS’ and the ‘DEFECTS’ LEDS will flash. Event zero (0) is the initial state (normal) of the system and is always the first to be displayed. To see the next event, press the ‘NEXT’ key and the alpha numeric LED will display 1, the first event to have occurred, at the same time the panel indicators will mimic the conditions at the time of that event. Press NEXT again to progress to the next event.

When no more events exist, pressing the ‘NEXT’ key will return the display to event zero. A total of eight (8) events may be recorded.

7 System Operation

7.1 Resetting the System

To reset the system after a fire, press the 'RESET' button on the main board. This will return the system back to its normal state if the cause of the alarm has been removed. The buzzer will sound for confirmation.

7.2 Isolating the Bells/Sounders

Bells may be isolated by either pressing the Bell Isolate switch on the PCB, or by operating the 'Silence Alarms' key switch on the outside of the cabinet.

Pressing Bell isolate on the PCB will cause the buzzer to beep and the LED above the switch to illuminate. To return Bells to normal press the switch again.

Note: Operating the key switch will cause a Defect signal to be sent.

7.3 Using the Walk Test facility

To start the walk test facility, press the 'Walk Test' switch on the PCB. The buzzer will beep once and the LED above the switch will illuminate. To avoid signalling the brigade, the 'Isolate 'switch on the SGD should be set to the 'Isolate' position. If it is not desirable to operate the sounders then isolate the bell as detailed above. Do not close the door at this stage. See section 3.1.5.

The detectors can now be tested. As a detector is set into alarm the system will operate as normal, except that after approximately three seconds the detectors on the circuit in alarm will be reset. After testing is complete press the 'Walk Test' switch to return to normal. Return any other switches to normal before closing the door of the NZ400.

7.4 Self Test Facility

To start the test, press the 'Test' button twice. The system will now place each zone into fire and defect conditions sequentially.

The test will terminate when finished. It may also be terminated at any time by another press of the 'Test' switch.

7.5 Evacuation

On the door of the NZ400 a key switch is provided for Evacuation, operating this key switch will cause the system to operate the evacuation signals and over ride any isolate or silence condition.

8 Troubleshooting

Problem	Possible cause/s	Suggested remedy/ action
Mains LED is off	Mains supply is not operational. AC Fuse on the MAF PCB is blown.	Check mains supply and fuse on the main connector block. Check and replace if necessary F3 on MAF PCB.
Bell circuits in defect.	Diodes not fitted in series with bell. End of line not fitted. Fuses blown.	Fit diodes to bells as shown in section 4.4.4. Fit end of line resistor Check Bell fuses F4 and F5 on MAF PCB. Replace if necessary.
Detectors will not signal fire.	Options are set incorrectly.	Check and set options as detailed in section 5
Zone always in defect.	Line is shorted or EOL resistor is missing (NZS4512:2003 only) .	Check and remove short. Locate possible open circuit
Zone does not indicate Defect during Self Test	Zone has too many devices on the circuit Wrong value EOL	Reduce number of devices Fit correct value of EOL
Internal LED's flash rapidly and keys will not operate.	Cable to CN2 (switches) of main board is disconnected.	Reconnect cable.
Panel buzzer operates with door closed	SGD option programmed but SGD not fitted or not powered	Change SGD option, power SGD
Signal Generating Device will not operate	Option not set correctly	Check and set options as detailed in section 5

Problem	Possible cause/s	Suggested remedy/ action
	SGD not powered.	Power SGD

9 Appendix

Q I = Quiescent Current Draw

Heat Detectors

Order Code	Description	Q I
4255-0300	Ampac Heat Detector blue Indicating 57°C	40µA
4255-0400	Ampac Heat Detector yellow Indicating 77°C	40µA

Note: Rate of Rise Heat Detectors are also available.

Smoke Detectors

Order Code	Description	Q I
55000-217	Apollo Series 65 Ionisation (LPC)	45µA
55000-317	Apollo Series 65 Optical (LPC)	45µA
55000-220	Apollo Series 65 Integrating Ionisation (LPC)	45µA
45681-200	Apollo Series 60/65 universal base	N/A
201-0501	Apollo Orbis Optical with Flashing LED	120µA
201-0505	Apollo Orbis MultiSensor	120µA
201-0528	Apollo Orbis universal base	N/A

Beam Detectors

Order Code	Description	Q I
220 0004	Fireray 2000 Beam Detector Tx/Rx/controller	8mA
220 0005	Fireray 50R Beam Detector	4mA
220 0006	Fireray 100R Beam Detector	4mA

Manual Call Points

Order Code	Description	Q I
213 0042	Ampac Manual Call Point	40µA

UNCONTROLLED DOCUMENT

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