F08 INSTALLATION & PROGRAMMING MANUAL DOCUMENT DATA SHEET

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Chapter 1	:	Introduction
Chapter 2	:	FIP Installation
Chapter 3	:	Placing into Operation
Chapter 4	:	Programming
Chapter 5	:	Application Considerations
Appendix A1	:	Compatible Batteries
Appendix A2	:	Compatible Actuating Devices
Appendix A3	:	Installation Drawings
		Zone Designation Label

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F08

INSTALLATION & PROGRAMMING MANUAL

F08 PRODUCT MANUAL
DOCUMENT: LT0082

Issue 3.04; 24 March 2006

The F08 Fire Indicator Panel is manufactured for

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The F08 Fire Indicator Panel provides a configuration programming facility which may be accessed via a programming push-button. Because this programming facility allows the user to define in detail the operation of the F08 System, changes may be made by the user that prevent an installation from meeting statutory requirements.

The Company, therefore cannot accept any responsibility as to the suitability of the functions generated by the user using the programming facility of the F08.

* * WARNING * *

The F08 is approved to AS/NZ 3548 Class A.

In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures.

TABLE OF CONTENTS

AMENDMENT LOG

ISSUE	DATE	AMENDMENT	ECN
1	10 Oct 89	Original with two versions: - Document 696-005 -> Installation - Document 696-004 Issue 1 -> Programming Amendment: 1 December 14, 1989	
2	11 Apr 92	Combined Installation, Programming and Brigade Kit Documentation.	
	28 May 98	Converted to Word 95 document.	
3	27 Oct 98	For V3.00 F08 software, additional input types, RAD/SAD, etc, 15V MCP, Resistor EOL.	2769
3.01	31 Jul 02	Prefix, Pages 2-6, 2-7, 2-27, 5-6….5-12, Appendix A revised.	3322
3.02	1 Mar 05	Fig 2.12 had Ext Def- directly driving the detector circuit. Appendix A2 - add 614CH, 614I & 614P	3524 3635
3.03	28 Oct 05	Added System Sensor detector 885WP-B to Appendix A.	ECS 1181
3.04	24 Mar 06	Appendix A2 – added 614T	3731

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1. INTRODUCTION

1.1 USING THIS MANUAL

This Manual provides information for personnel engaged in the installation, programming and commissioning of the F08 Fire Alarm Panel. It is available only to **bonafide installation and maintenance organisations**.

The structure of this manual is as follows:

Chapter 1, Introduction, describes the manual, explains the format and terminology used in this manual, and lists associated F08 product manuals.

Chapter 2, FIP Installation, describes the installation of the F08 FIP; mains wiring; battery installation; detector, ancillary, auxiliary, bell and brigade output wiring; and other related wiring.

Chapter 3, Placing Into Operation, describes the procedures for placing an F08 into operation. A commissioning checklist is included.

Chapter 4, Programming An F08, describes the steps necessary in programming an F08 FIP ready for a particular installation.

Chapter 5, Application Considerations, describes some aspects of special applications, such as remote panel operation, false alarm minimization and trouble shooting.

Appendix A1, Compatible Batteries, gives a list of compatible batteries.

Appendix A2, Compatible Detectors, gives a list of detectors compatible with the F08.

Appendix A3, Installation Drawings, Includes wiring diagrams for the various brigade interfaces and provides a place for system installation drawings to be inserted.

1.2 ASSOCIATED DOCUMENTATION

1.2.1 PRODUCT RELATED

The following F08 manuals are available:

Volume 1 **F08 Operator's Manual**, provides a complete guide to the operation and maintenance of the F08 FIP, according to Australian Standards AS1603 Part 4. This manual is provided as standard with F08 FIP panels. It is available in a bound A5 format (LT0054) and in an A4 loose-leaf format (LT0078).

Volume 2 **F08 Technical Manual**, provides complete technical details on the F08 system and Hardware/Software components, according to Australian Standards AS1603 Part 4, for servicing purposes. (LT0081)

Volume 3 **F08 Installation & Programming Manual**, provides complete details for correctly installing, wiring, programming and placing into operation the F08 FIP. (LT0082)

1.2.2 STANDARD RELATED

AS1603.1,2,3 Automatic Fire Detection and Alarm Systems -Detectors Parts 1, 2, & 3 (Heat, Smoke, & Flame)

AS1603.4 Automatic Fire Detection and Alarm Systems
Part 4 - Control and Indicating Equipment

AS1603.5 Automatic Fire Detection and Alarm Systems
Part 5 - Manual Call Points

AS1603.6 Automatic Fire Detection and Alarm Systems
Part 6 - Fire Alarm Bells and Bell Simulators

AS1670.1 Automatic Fire Detection and Alarm Systems -
System Design, Installation, and Commissioning.

AS1851.8 Automatic Fire Detection and Alarm Systems.
Part 8 - Maintenance of Fire Protection Equipment

1.3 TERMINOLOGY

The following abbreviations and terminology are used in this manual.

A/C	:	Air Conditioning
"ACVD"	:	Display abbreviation for ACTIVATED
"ALM"	:	Display abbreviation for ALARM
Ancillary Equipment	:	Equipment external to Fire Alarm system
Ancillary Relay	:	Relay in FIP which operates Ancillary equipment
Auto-Reset	:	Mode for one man testing of detectors
Auxiliary Output	:	Output for driving additional outputs
AZC	:	Alarm Zone Circuit, or Detection Zone
AZF	:	Alarm Zone Facility, or Group
AVF	:	Alarm Verification Facility, or Check Alarm
COM	:	COMMON relay contact
Control Key	:	Key on FIP Display panel for operator control
Control Output	:	Output from FIP to other equipment
DETECTOR	:	Alarm Detection Device
DETECTOR CIRCUIT	:	Detectors electrically connected to FIP
EEPROM	:	Electrically Eraseable Programmable Read Only Memory
EOL	:	End Of Line (device)
ELV	:	Extra Low Voltage
FIRE CONTROL STATION	:	Fire Brigade Authority, or any other authority which receives the FIP alarm signals.
FIP	:	Fire Indicator Panel
"FLT"	:	Display abbreviation for FAULT
FRC	:	Flat Ribbon Cable
GLOBAL	:	No F08 zone/output/battery selected. (i.e. all "SEL" LED indicators are OFF)
"ISO"	:	Display abbreviation for ISOLATED
LED	:	Light Emitting Diode
MAPPING	:	Programming AZCs to control outputs
MCP	:	Manual Call Point (Break Glass Switch)
MOV	:	Metal Oxide Varistor (Used for Surge Protection)
NC	:	Normally Closed
NO	:	Normally Open
PCB	:	Printed Circuit Board
PTC	:	Positive Temperature Co-efficient (Thermistor)
RAM	:	Random Access Memory
ROM	:	Read Only Memory
"SEL"	:	Display abbreviation for SELECT
U18.6	:	IC U18 pin 6
VB	:	Battery Backed Voltage.
VNB	:	Non Battery Backed Voltage.
ZONE	:	Fire searchable area of building

2. FIP INSTALLATION

2.1 OVERVIEW

This chapter describes in detail the following FIP installation procedures:

Cabinet Installation

Mains Wiring

Battery Installation

MCP Wiring

Alarm Zone Wiring & Circuit Types

Bell Output Wiring

Supervised Ancillary Relay Output Wiring

Auxiliary Output Wiring

Door Holder Wiring

Brigade Interface Relays

Zone Labelling.

*** * WARNING * ***

PLEASE ENSURE THAT THE SYSTEM HAS BEEN THOROUGHLY TESTED BEFORE THE CONNECTION OF BATTERIES AND EXTERNAL WIRING.

2.2 CABINET INSTALLATION

The location of the F08 FIP is determined by the FIRE AUTHORITY and the OWNER or OWNERS' REPRESENTATIVE in accordance with the current Australian Standard AS1670.1.

The cabinet is normally fixed to a wall with four (4) 6 mm screws or bolts. The drilling details are shown in Figure 2.1.

The following points must be observed.

(a) Dry Area, 50°C maximum ambient temperature.

(b) Not exposed to direct sunlight or external environments without suitable protection.

(c) Indicators and controls must not be higher than 1850 mm and not lower than 750 mm above finished floor level (see Figure 2.1).

(e) Clear access; easy Fire-Fighter's access and observation.

(f) For unhampered installation and maintenance, at least 1 metre free space must be provided to the front and sides of the F08 FIP. (see Figure 2.2)

(g) Must not be installed in hazardous areas as defined in AS3000.

(h) If recessed into a wall cavity, allow for the door to open by at least 145° and prevent water entering the cabinet. Seal unused knockouts and any top cable entries. Preferably use bottom cable entry, with cables going down 100 mm below cabinet before rising.

* * WARNING * *

1. It is not necessary to remove the Main Board Electronics when installing the cabinet. However, if drilling or filing holes in the cabinet, remove the Main board first, and clean out any swarf before replacing. Refer to Section 2.4.3 for the correct procedure for removing and refitting the Main Board.

2. Use ANTI-STATIC precautions when handling any PCBs.

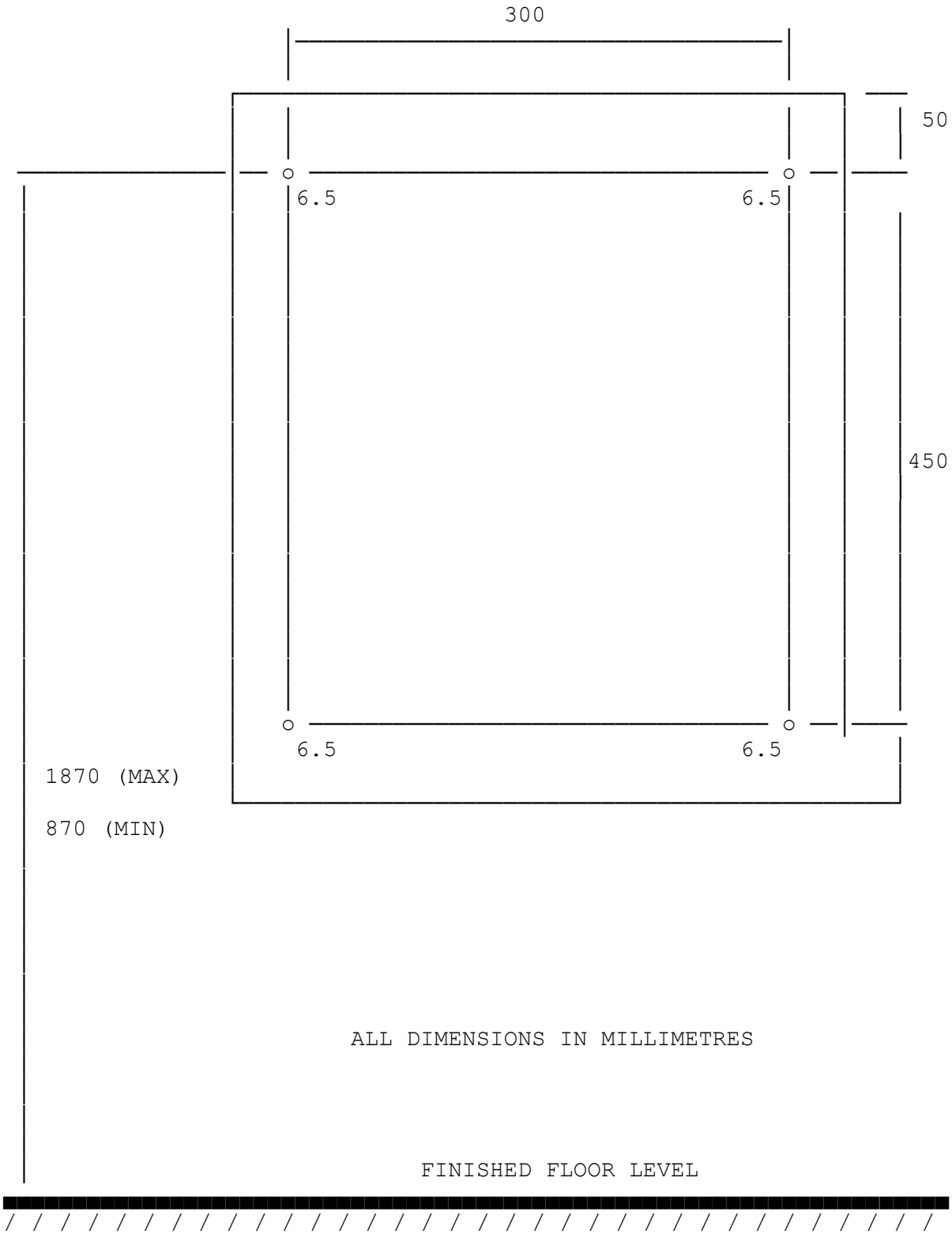

Figure 2.1
F08 Cabinet Mounting Details

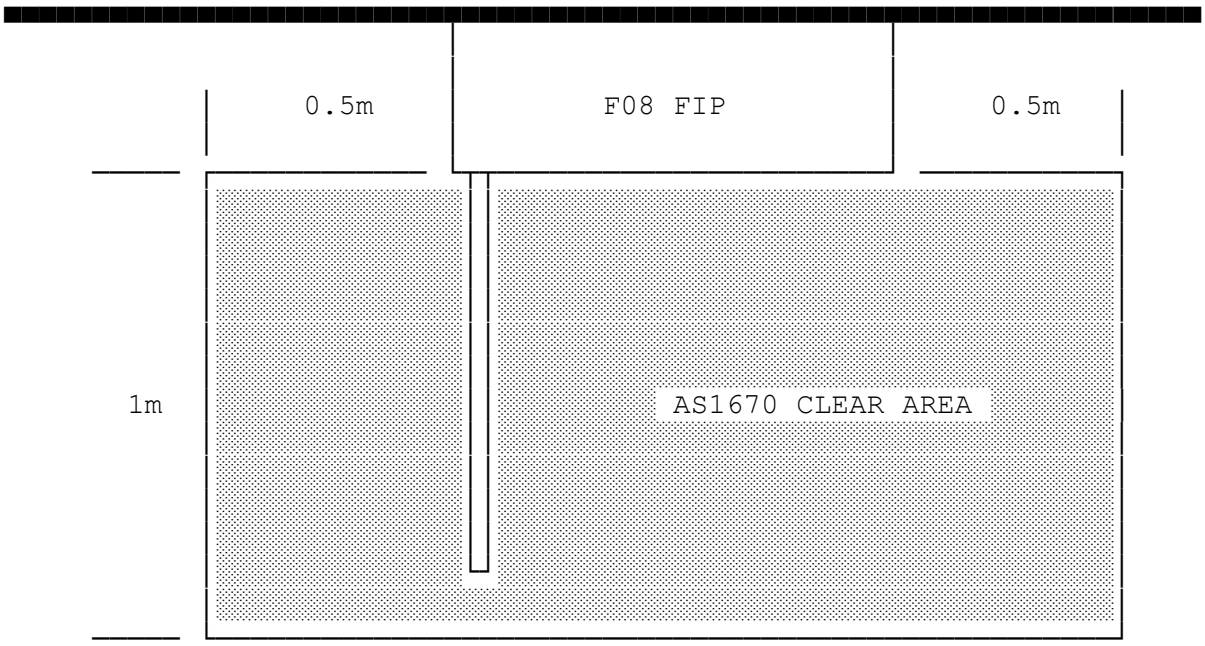

Figure 2.2
FIP Cabinet Clearance

2.3 MAINS WIRING

Mains wiring must be done in accordance with AS1670.1 and AS3000 Wiring Regulations.

* * WARNING * *

Ensure mains is isolated at Distribution Board before connecting or inspecting mains wiring.

The mains wiring should be fixed firmly to the 3 way screw terminal block under the Mains switch.

Check that safety earths to cabinet doors, Main Board, and mains switch cover are still connected firmly to the earth studs.

* * NOTES * *

1. Mains supply must be 240 VAC (+6% -10%), at 50 Hz, and terminated as described.

2. All other wiring coming into the panel, including all relay wiring, must only be ELV.

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2.4 MAIN BOARD

Figure 2.4 shows the basic layout of the F08 FIP Main Board.

2.4.1 TERMINALS

The following terminals and connectors are provided:

J1 - Display FRC Output Connector.
J2 - 12 Way Screw Input Terminal for MCP AZC, MCP, AZC1, AZC2 and AZC3.
J3 - 12 Way Screw Terminal for AZC4, AZC5, AZC6, AZC7, AZC8, 0V, BATTERY, and EARTH.
J4 - Sounder Output Connector.
J5 - AC IN - 31 VAC Input Connector.
J6 - 12 Way Screw Terminal for AUX1- to AUX8-, VB, VNB, and 0V.
J7 - 12 Way Screw Terminal for Brigade Relays; Standby, Fault, Isolate and Alarm.
J8 - 12 Way Screw Terminal for Alarm Relay, Ancillary Relay & Supervision and Bells.
J9 - Reserved for future MODEM socket.
J10 - Link 1-2 for Microprocessor RESET
Link 2-3 for Watchdog DISABLE.
J12 - Reset Watchdog Activated LED.

2.4.2 FUSES

The following fuses are located on the Main Board:

F1	BELLS	Rated 1.6 Amp
F2	VB	Rated 1.6 Amp
F3	VNB	Rated 1.6 Amp
F4	AC IN 31VAC	Rated 5.0 Amp

2.4.3 REMOVAL & INSTALLATION

The Main Bd should be removed carefully as it is a delicate piece of electronic equipment. An electrostatic earth lead should be worn at all times when working on the bd.

Disconnect all field wiring, battery leads, MCP wiring, AC leads, earth wires and the Display Bd FRC from the Main Bd. Undo the 3 nuts that secure the heatsink to the cabinet case. Push back the barbs on the plastic standoffs and carefully pull the Main Bd away from the cabinet.

DO NOT separate the heatsink from the Main Bd as this will weaken the components on the heatsink and increase any repair cost.

Installation is just the reverse of the removal.

Thoroughly check the wiring before applying power and check all functions after power is connected.

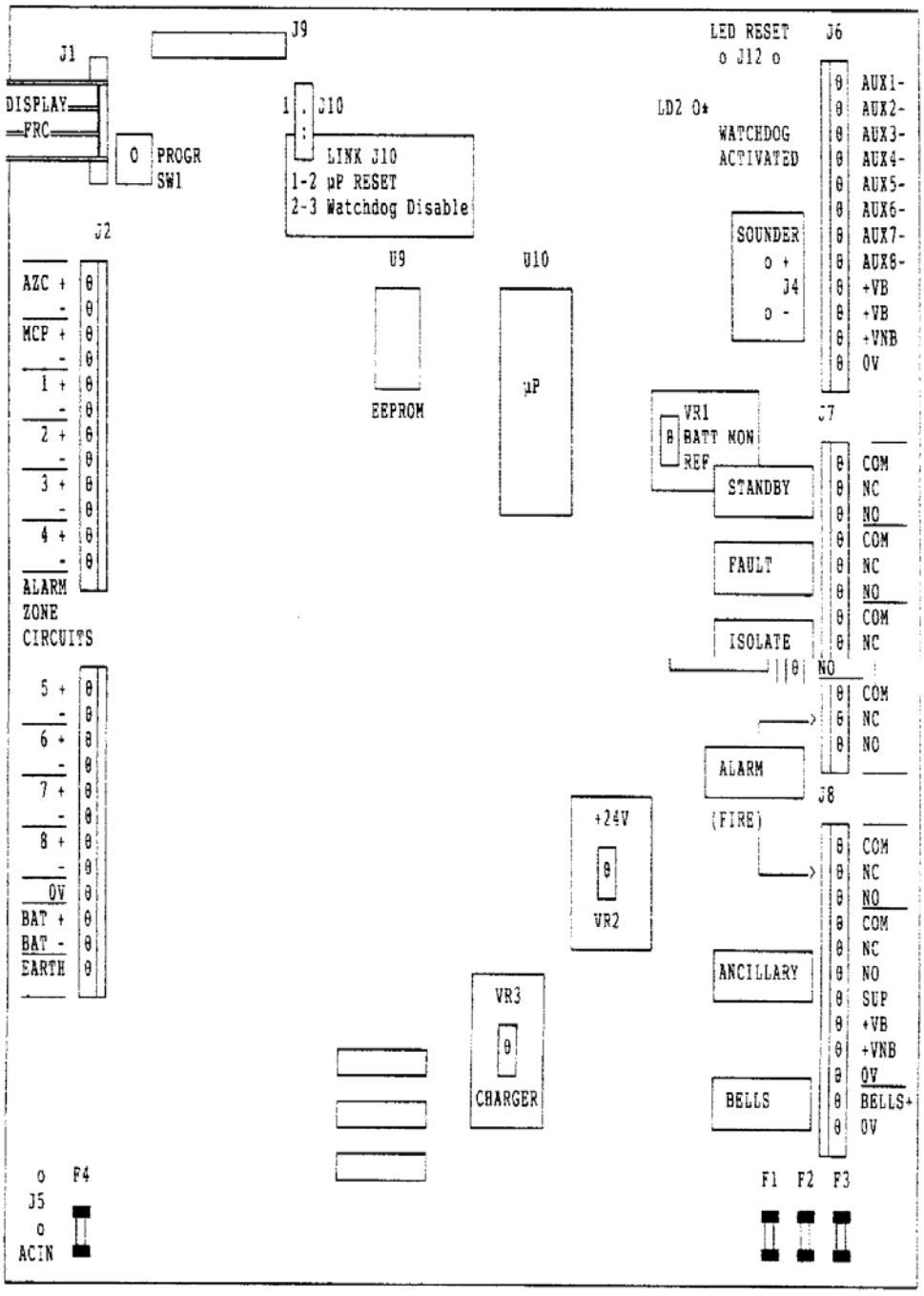


Figure 2.4
F08 Main Board Layout

2.4.4 FIELD SUPPLY CONNECTIONS

The F08 FIP Main Board provides two types of fused power outputs.

(a) Terminals labelled "+VB" provide 27.3 VDC supply output, which is battery backed. "+VB" terminals are fused by F2.

(b) Terminals labelled "+VNB" provided a non-battery backed 27.9 VDC supply output. "+VNB" terminals are fused by F3.

The total load current available from "+VB" and "+VNB" is 1.5 Amps. This excludes the panel and battery charging currents.

A block diagram of the fused power outputs is shown in Figure 2.5.

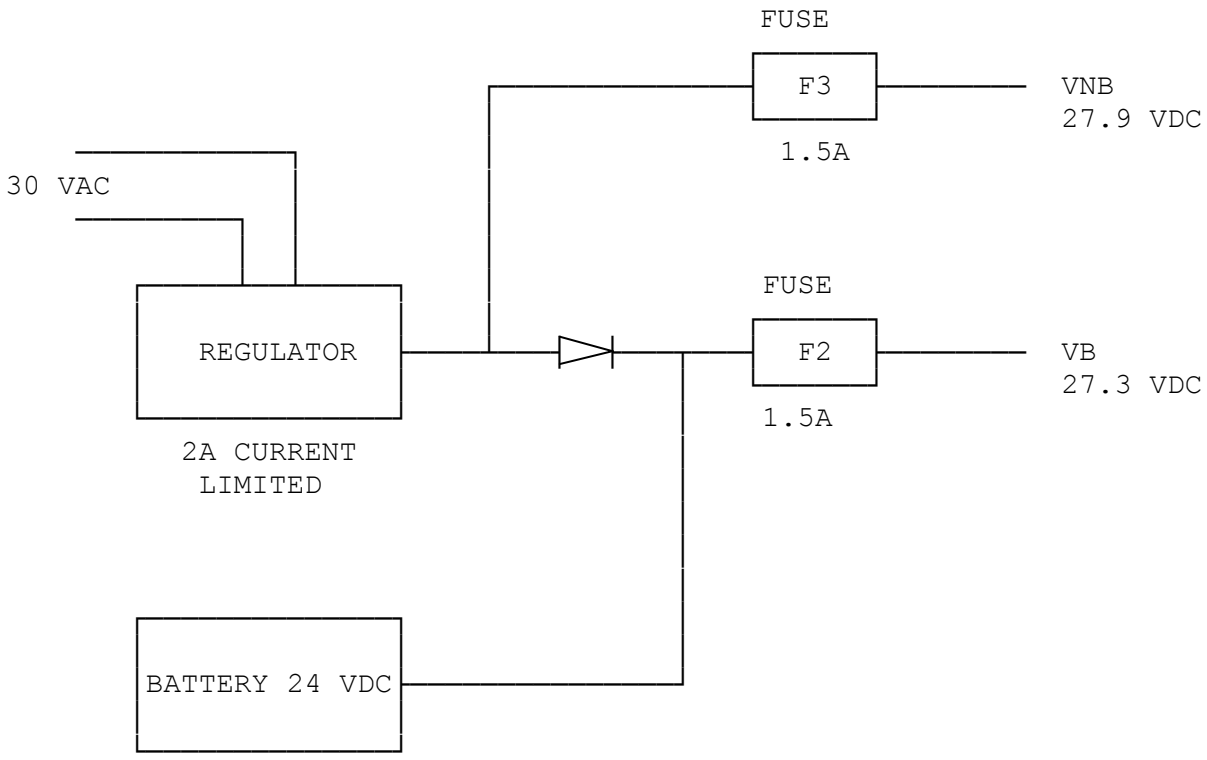


Figure 2.5
Block Diagram of F08 Power Supply

2.5 BATTERY INSTALLATION

Install only compatible batteries (refer Appendix A) in the bottom of the FIP cabinet. Using the battery cables supplied, connect wiring as shown in Figure 2.6.

*** * NOTES * ***

(a) The F08 system should be system tested before connecting the batteries.

(b) If the batteries are located remotely from the F08, a battery protection device (> 3 Amps) must be located at the batteries.

(c) USE ONLY THE BATT+ & BATT- TERMINALS PROVIDED. PARALLEL CONNECTION OF BATTERIES IS NOT PERMITTED.

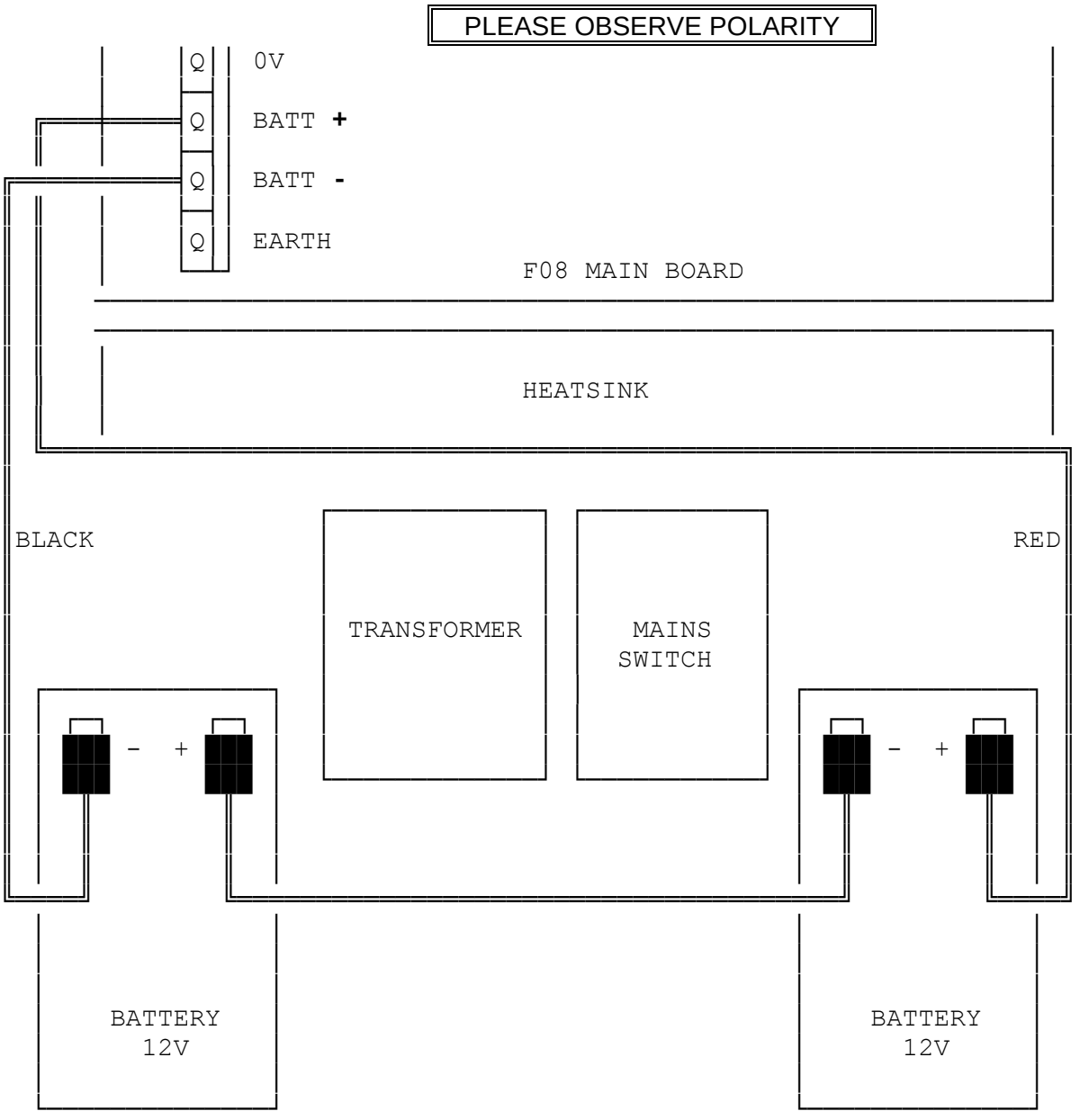


Figure 2.6
Battery Connections

2.6 FIP MCP WIRING

The front door manual call point is factory connected by four wires to the "MCP" connector J2, located at the top left hand side of the Main Board, and to ZONE 1 (AZC1).

If required by Customer specifications, the MCP can be wired to any other Alarm Zone Circuit. This is done by shifting the MCP return wires from AZC1 to another AZC, but **MAINTAIN THE CORRECT POLARITY**.

Figure 2.7 shows an example of the MCP wired to AZC4.

NOTE 1: The MCP becomes the first "DETECTOR" on the particular AZC used. The field cabling to the next detector on that AZC is connected to the terminals (J2; 1 & 2) labelled AZC.

NOTE 2: MCPs can be used only on AZCs programmed as zone input type 1 or type 2. Refer to Section 2.7.2 for a description of the ten different zone input types.

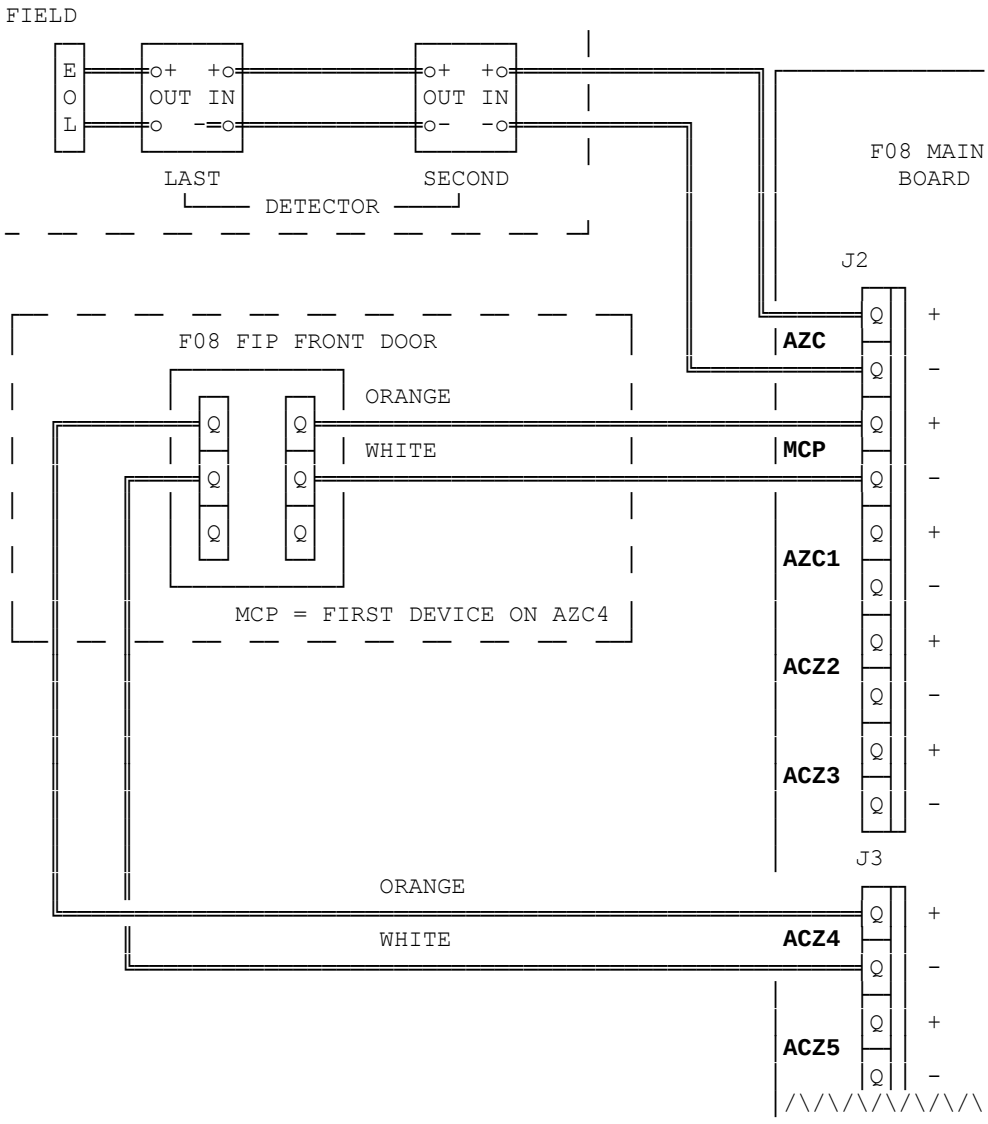


Figure 2.7
Example of MCP Wired to Zone 4

2.7 ALARM ZONE WIRING & CIRCUIT TYPES

2.7.1 CIRCUIT WIRING

The following rules MUST be observed when wiring ALARM ZONE CIRCUITS:

1) Detector TYPES and NUMBER per AZC MUST COMPLY WITH THOSE STATED IN THE OPERATOR'S MANUAL.

2) Detector positioning, installation and wiring must conform with AS1670.1 and detector manufacturer's instructions.

3) The F08 EOL resistor (2k7 1%) must be fitted to the base of the last detector/MCP on each AZC. If the circuit is disabled the resistor may be left off to reduce current consumption.

4) Alarm Zone Circuit (detector circuit) wiring is terminated on the F08 Main board screw terminals marked "AZC1" to "AZC8", except the F08's MCP zone which is terminated at "AZC".

5) Observe circuit polarity. "+" to "+", "-" to "-".

6) Detectors are wired across the AZC (+ to -) with a series link to give an open circuit (Fault) if the detector is unplugged.

7) Observe "IN" and "OUT" wiring of detectors;
   - "IN" is from previous detector / Fire Panel.
   - "OUT" is to next detector / EOL.

9) If in doubt, refer to detector information for specific detail.

10) Figure 2.8 shows the correct way to wire an AZC with detectors and/or MCPs. The MCPs and detectors may be in any order. The MCPs however must be the correct type for 15V operation.

11) Figure 2.9 shows the correct way to wire the EOL resistor.

12) Figure 2.10 shows examples of INCORRECT AZC wiring.

13) When operating, circuit voltages at AZC terminals "+" and "-", should be as follows :

i.	Between 23 and 24 VDC	->	Fault (EOL open)
ii.	Between 18 and 23 VDC	->	Normal (EOL connected)
iii.	Between 13 and 17 VDC	->	MCP alarm (programmable)
iv.	Less than 13 VDC	->	Detector operated (programmable)

Interpretation of the 13-17 volt band and 0-13 volt band depends on the programming of the circuit type as described in Section 2.7.2.

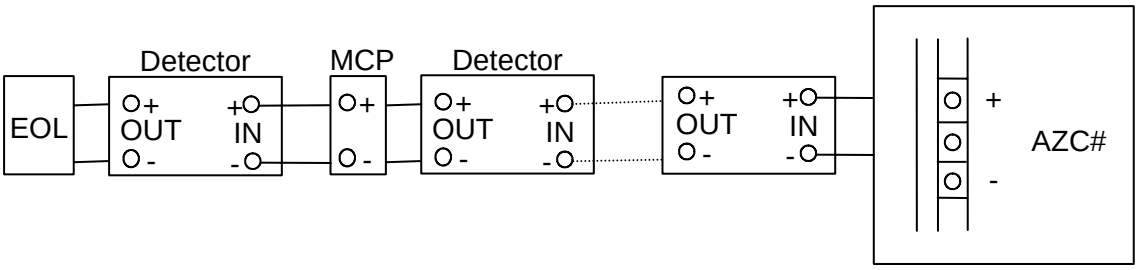


Figure 2.8
Example of Correct AZC Detector/MCP Wiring

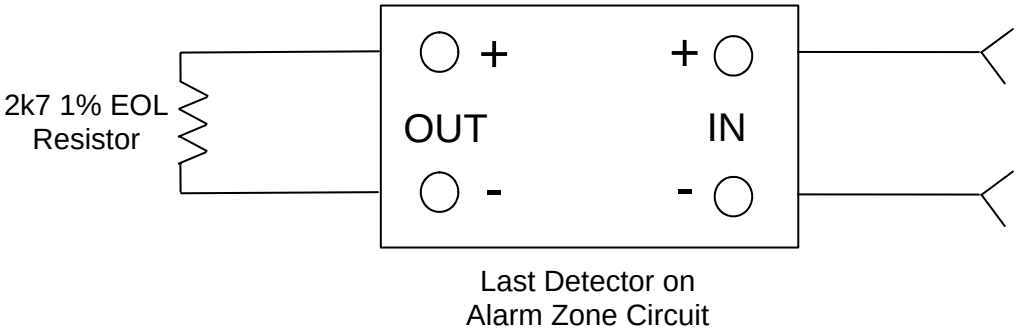


Figure 2.9
Correct EOL Wiring

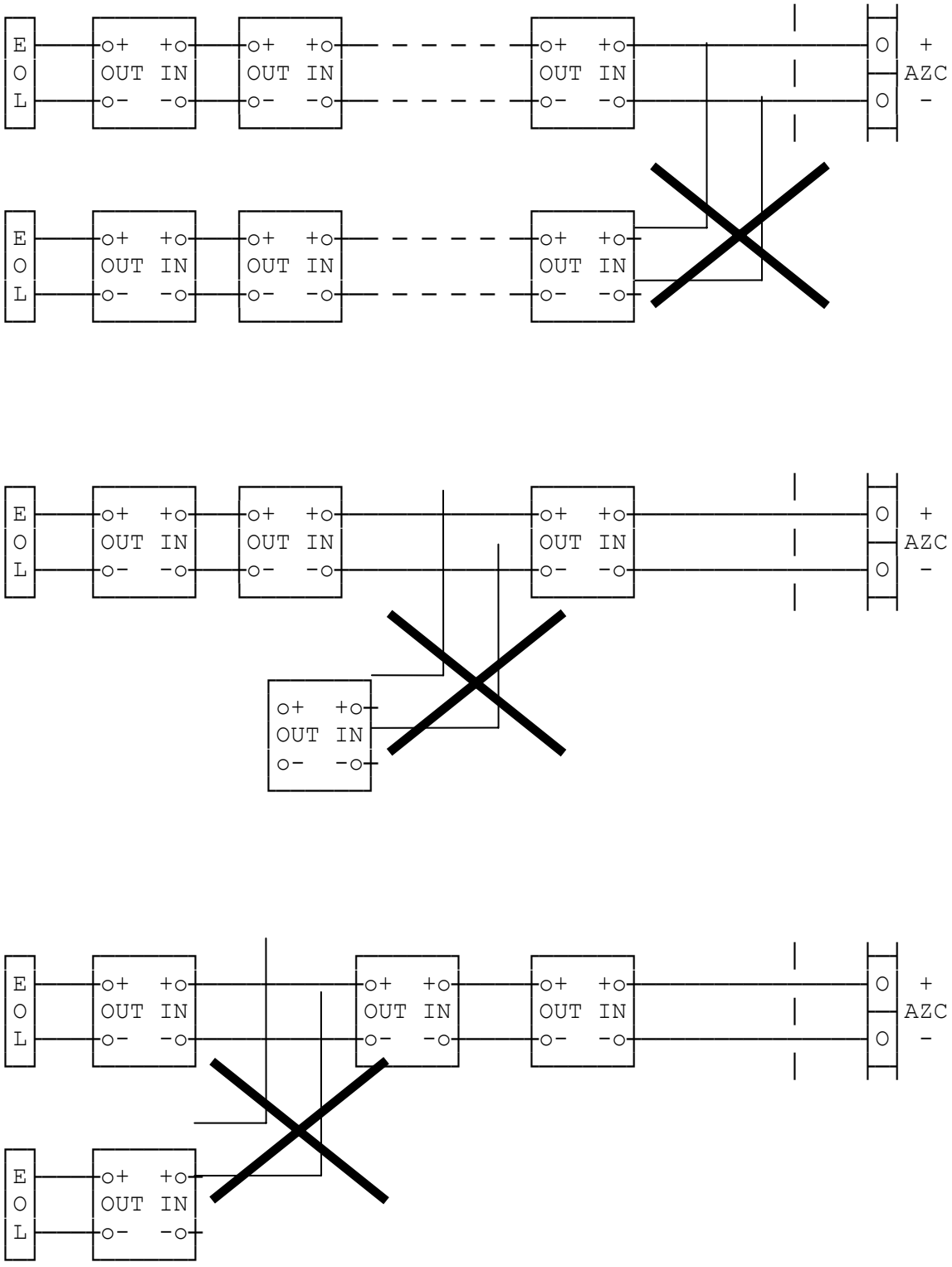


Figure 2.10
Incorrect AZC Wiring Examples

2.7.2 INPUT TYPES

Each AZC can be programmed with one of ten different input types (refer Section 4.7). These types are defined as follows and in Table 2.1.

Input Type 1 : Standard

Standard detector circuit without AVF. Both MCPs and detectors are allowed. Delay into alarm is 2 seconds.

Input Type 2 : AVF/RAD

Standard detector circuit with AVF. MCPs are allowed and override AVF. AVF sequence is: 2 seconds before first recognition, 5 second delay, 5 second reset, 2 second ignore, 2 second alarm recognition, 150 second acceptance period.

Input Type 3 : SAD

AS1668 SAD circuit (Supply Air Detector). 0-17V band is alarm with 2 seconds delay into alarm and 60 seconds delay out of alarm. The detector must be non-latching and the zone should be programmed as non-latching.

Input Type 4 : AVF/SAD

AS1668 AVF/SAD. 0-17V band is alarm with AVF (as for circuit type 2 AVF/RAD). Delay out of alarm is 60 seconds. The detector must be non-latching and the zone should be programmed as non-latching. 60 seconds of continuous non-alarm must be present on the AZC input before the zone indicates non-alarm.

This input type can also be used with latching detectors that have a high alarm voltage (up to 17V), when AVF is required (e.g. with IS isolating repeaters). Configure the zone as latching. When the zone is reset the detector will be reset and the zone taken out of alarm immediately, overriding the 60 second delay out of alarm.

Input Type 5 : Flowswitch

0-13V band is alarm with 20 second delay into alarm. 13-17V band is normal. The detector is non-latching and the zone should be programmed as non-latching. 20 seconds of continuous alarm must be present on the AZC input before the zone indicates alarm.

Input Type 6 : Standard/No MCP

Standard detector circuit without AVF. MCPs are not allowed and 13-17V band is interpreted as fault to provide line leakage fault indication. The delay into alarm is 2 seconds. The delay into fault for 13-17V band is half a second.

Input Type 7 : AVF/RAD/No MCP

Standard detector circuit with AVF as for Type 2 AVF/RAD except that MCPs are not allowed and 13-17V band is interpreted as fault to provide line leakage fault indication. The delay into fault for 13-17V band is half a second.

Input Type 8 : Fast Supervision

13-17V band is alarm with half a second delay into alarm. 0-13V band is fault providing both short circuit and open circuit fault detection. This is typically used for sub-panel monitoring with sub-panel alarm relay in series with 15V zener diode. The delay into fault for 0-13V band is half a second.

INPUT TYPES (CONTINUED)

Input Type 9 : Loop Powered Circuit / Fast Alarm

0-13V band is alarm with half a second delay into alarm. 13-17V band is normal for 15V loop powered circuit.

Input Type 10 : Normally Closed Contact

13-17V band is alarm with 2 seconds delay into alarm. 0-13V band is interpreted as normal.

Delay Out of Alarm

For a non-latching zone, the delay out of alarm for all circuit types other than type 3 (SAD) and type 4 (AVF/SAD) is 120 millisconds.

Detector LED Current Boost

Input Type 1-7:

When the AZC input is currently in any alarm band, a 50 millisecond current boost will be applied to the circuit once a second.

Input Type 8 (Fast Supervision), 9 (Loop Powered) and 10 (Normally Closed):

When the AZC input is currently in any alarm band and the zone is in alarm or latched in alarm then a 50 millisecond current boost will be applied to the circuit once a second.

INPUT TYPES

	INPUT TYPE				
VOLTAGE	1 INSTANT	2 AVF/RAD	3 SAD	4 AVF/SAD	5 FLOW SWITCH
24V	Fault	Fault	Fault	Fault	Fault
17-23V	Normal	Normal	Normal	Normal	Normal
13-17V	0-17 Volt treated as the same state.	Alarm after 2 seconds.	0-17 Volt treated as the same state.	0-17 Volt treated as the same state.	Normal
0-13V	Alarm after 2 seconds.	AVF into alarm.	Alarm after 2 seconds. Delay out of alarm is 60 seconds.	Alarm after AVF. Delay out of alarm is 60 seconds.	20 Second delay into alarm. No delay out of alarm.
	INPUT TYPE				
VOLTAGE	6 LEAKY CCT	7 LEAKY CCT & AVF	8 SUB-PANEL S/C FAULT	9 FAST ALARM	10 NORMALLY CLOSED
24V	Fault	Fault	Fault	Fault	Fault
17-23V	Normal	Normal	Normal	Normal	Normal
13-17V	Fault 0.5 seconds	Fault 0.5 seconds	Alarm after 0.5 seconds.	Normal	Alarm after 2 seconds.
0-13V	Alarm after 2 seconds.	AVF into alarm.	Fault after 0.5 seconds.	Alarm after 0.5 seconds.	Normal
AVF = 2 second alarm, 5 second delay (circuit still energised), 5 second reset, energise 2 second ignore, start processing.					

Table 2.1
F08 Input Types

2.8 BELL OUTPUT WIRING

2.8.1 GENERAL

At the bottom of J8 terminals "BELLS +" and "0V" are provided for connection to external bell circuits. The Bell Output is a switched 24V DC output, derived from +VB through the Bell fuse F1.

NOTES:

1) Connect ONLY 24 VDC devices.

2) Observe correct polarity for polarised devices, eg electronic sirens.

3) Maximum load current is 1.0 Amps as the bells are an inductive load. (Please note total load constraints). For heavier loads use an interposing relay.

4) The "BELLS+" output is fused by fuse F1, labelled "BELLS", and is rated at 1.6 A.

5) The "BELLS" circuit is not supervised.

6) Figure 2.11 shows an example of bell wiring.

7) For optimum suppression install diodes across each BELL.
   - Use diode type 1N4004 (400V 1A) or similar.
   - Note polarity of diode. (Cathode to Bell Positive).

2.8.2 SUPERVISED BELL OUTPUT

A supervised bell output can be arranged with an optional 24V Bell Monitor Board (part number PA0494) and a 24V GP Relay Board (part number PA0730). The Bell Monitor Board supervises the bell wiring for open or short circuits.

On a fault, the Ext Def- output of the Bell Monitor goes “low” and turns off the relay on the GP Relay Board, causing the EOLR to be disconnected from the F08’s detector circuit.

The AZC should be programmed as Input Type 1 (default option).

The Bell Monitor Board can support wiring of up to 3 separate branches (each with an EOL resistor), and a load current of 1.0A (as limited by the F08 Bell Output). The end of line resistor depends on the number of branches.

Number of Branches	EOL
1	10k 5%
2	18k 5%
3	27k 5%

Note that a diode is required with any device that does not already contain a series diode.

Figure 2.12 shows the wiring arrangement for the Bell Monitor board.

The 10k pull-up resistor should be soldered between the Ext Def- tab and the left end of link A3. After soldering, check that the solder joints on the bottom of link A3 are still good.

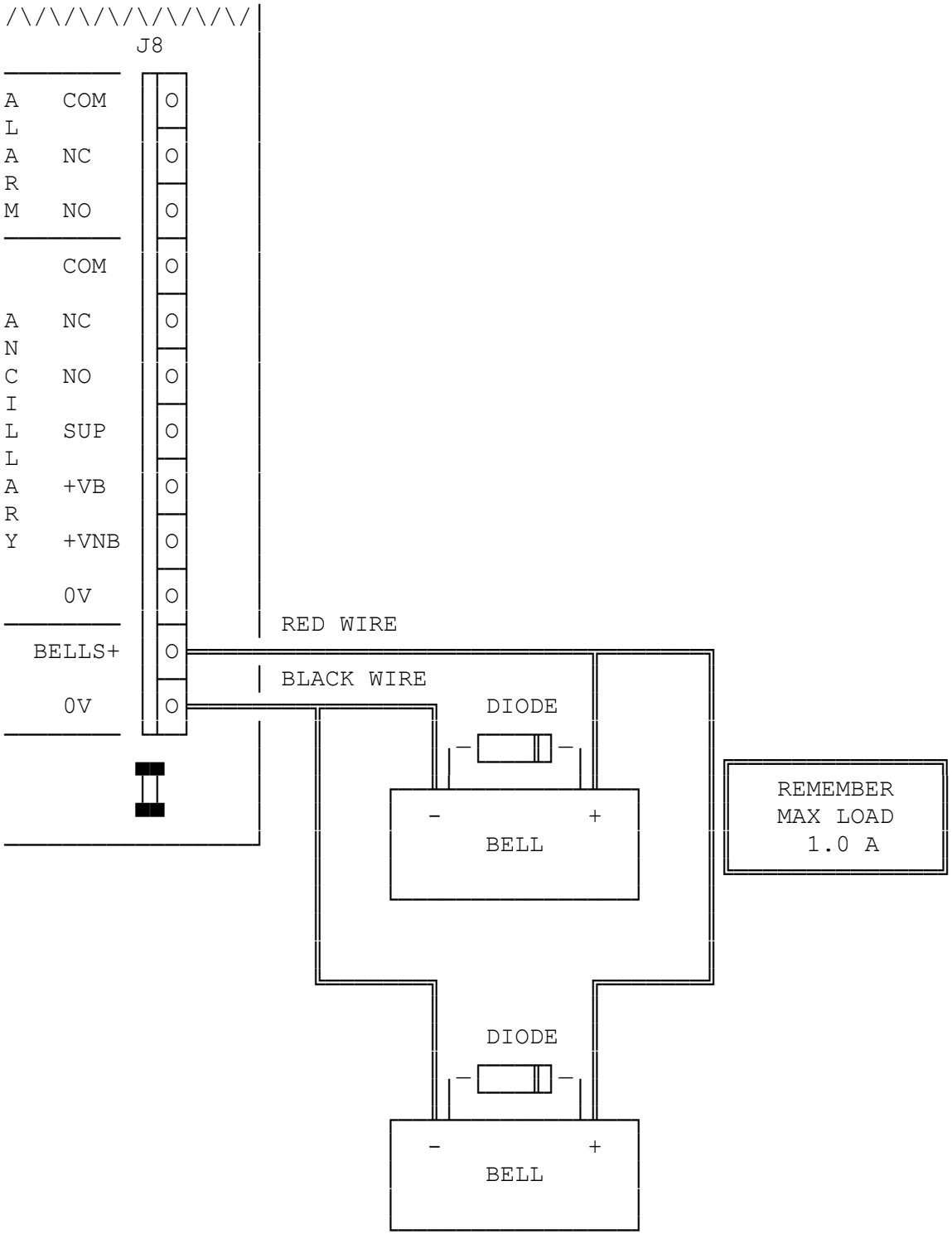


Figure 2.11
Bell Output Wiring

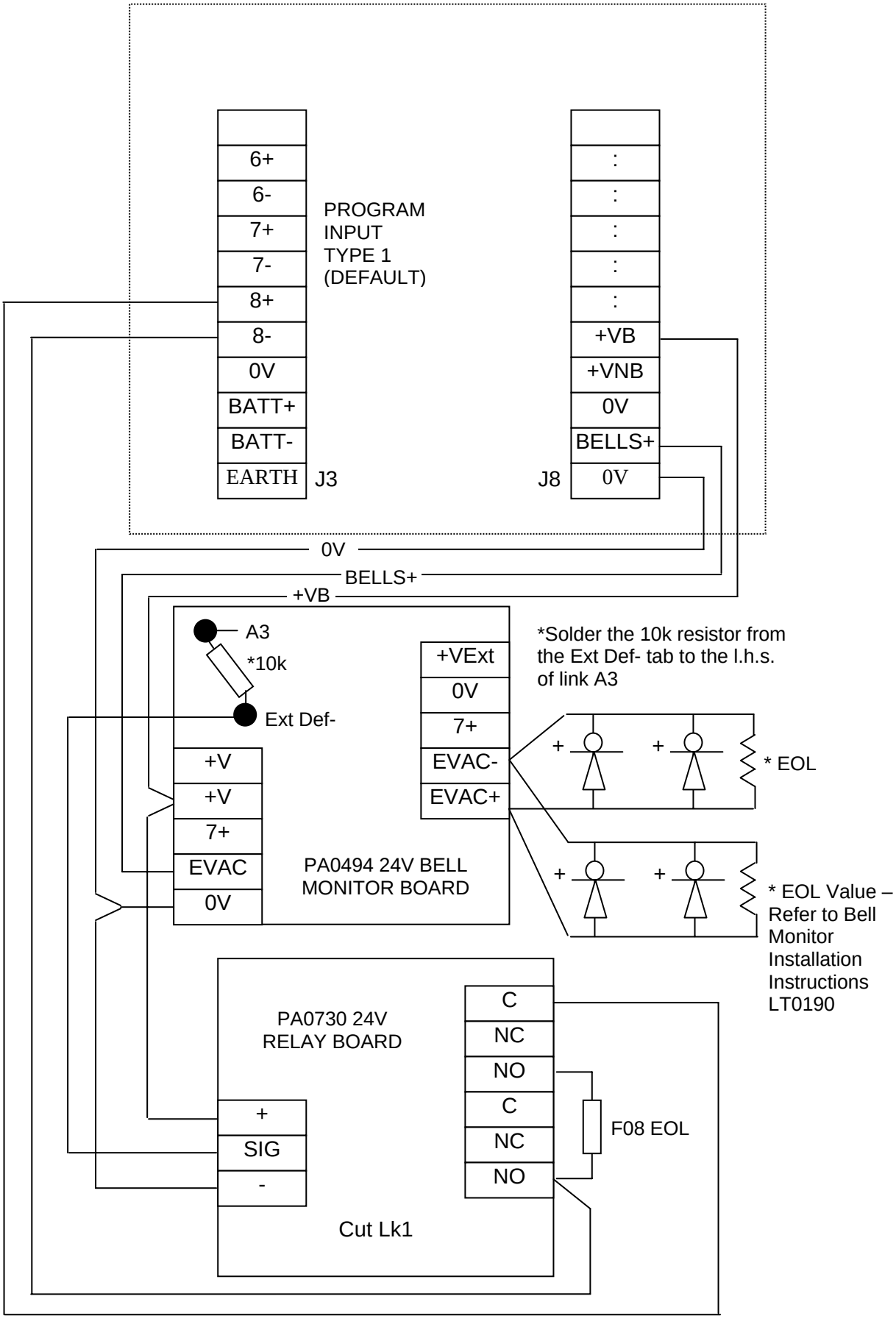


Figure 2.12
F08 Bell Output with PA0494 Bell Monitor Board

2.8.3 CONNECTING T-GEN 50 TO F08

T-GEN 50 is a self contained AS2220 Alert and Evacuate tone generator and may be used on the F08 as well as, or instead of, the standard bells output.

There are four ways to connect the T-GEN to the F08. For each the T-GEN must be powered from the battery terminals through a 3A slow blow fuse and T-GEN's DEF- output wired into an AZC input to signal a fault with the wiring. This AZC must be programmed for circuit type 8 (short circuit fault).

1) Connect T-GEN using the Bells Relay.

   T-GEN requires a closed contact output to 0V to allow operation. The standard F08 Bells output is switched 24V so it needs to be modified.

   1) Remove the "Bell Fuse" F1.
   2) Solder a wire to the top Bell Fuse holder and connect it to 0V as per Figure 2.13A.
   3) Connect the T-GEN as per Figure 2.13A.

The T-GEN can then be connected as follows:

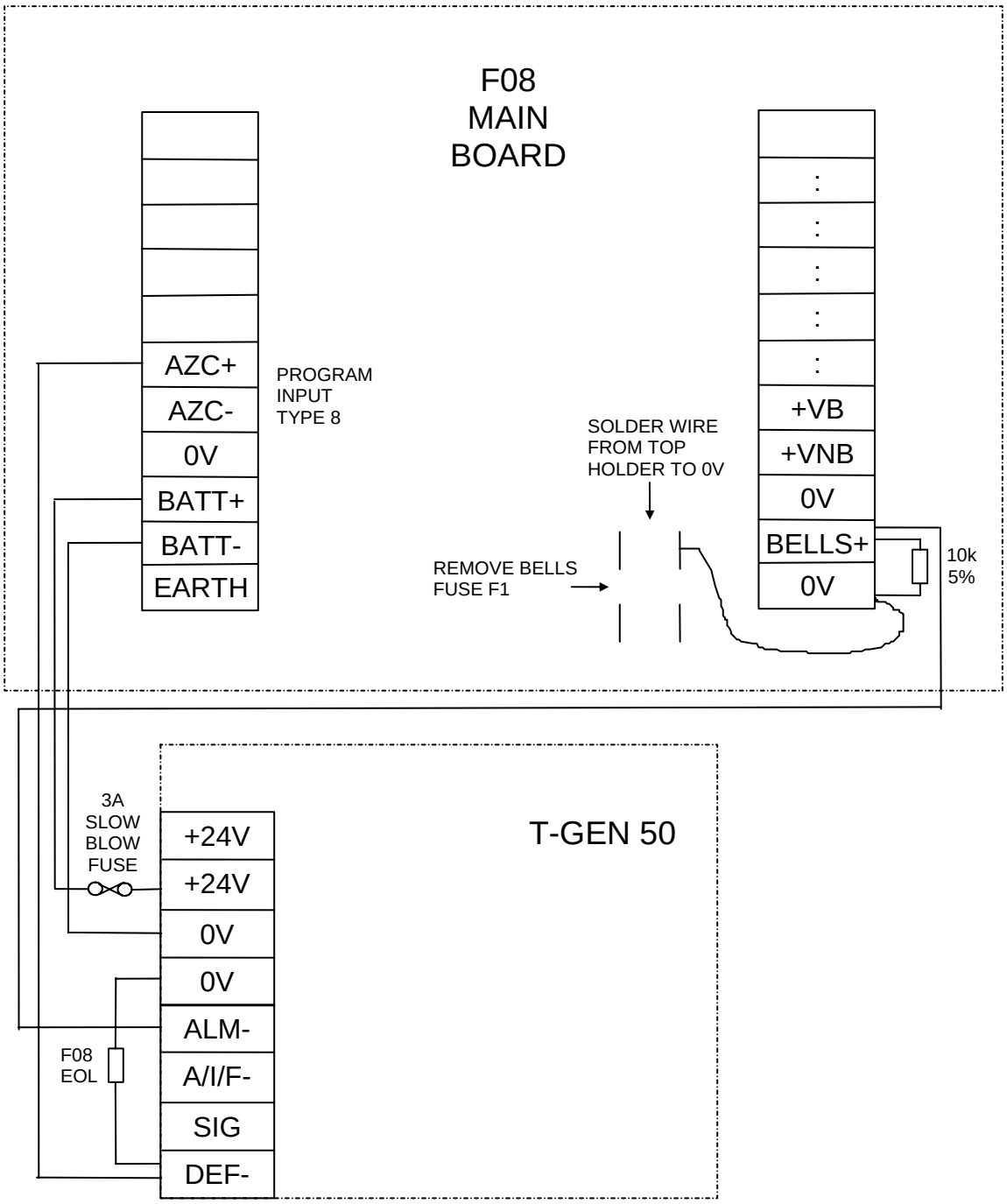


Figure 2.13A
F08 using T-GEN on Bells Relay

2) Connect T-GEN using the Ancillary Relay.

If the Ancillary Relay is not being used, it may be used to control the T-GEN.

The Ancillary Relay must be programmed to operate on all the zones that require tone signalling.

With the T-GEN connected in this fashion, pressing the silence key will not silence the T-GEN, the only way T-GEN can be silenced is by isolating the Ancillary Relay.

Also, performing a Bells test will not activate T-GEN, the Ancillary Relay test will need to be used instead.

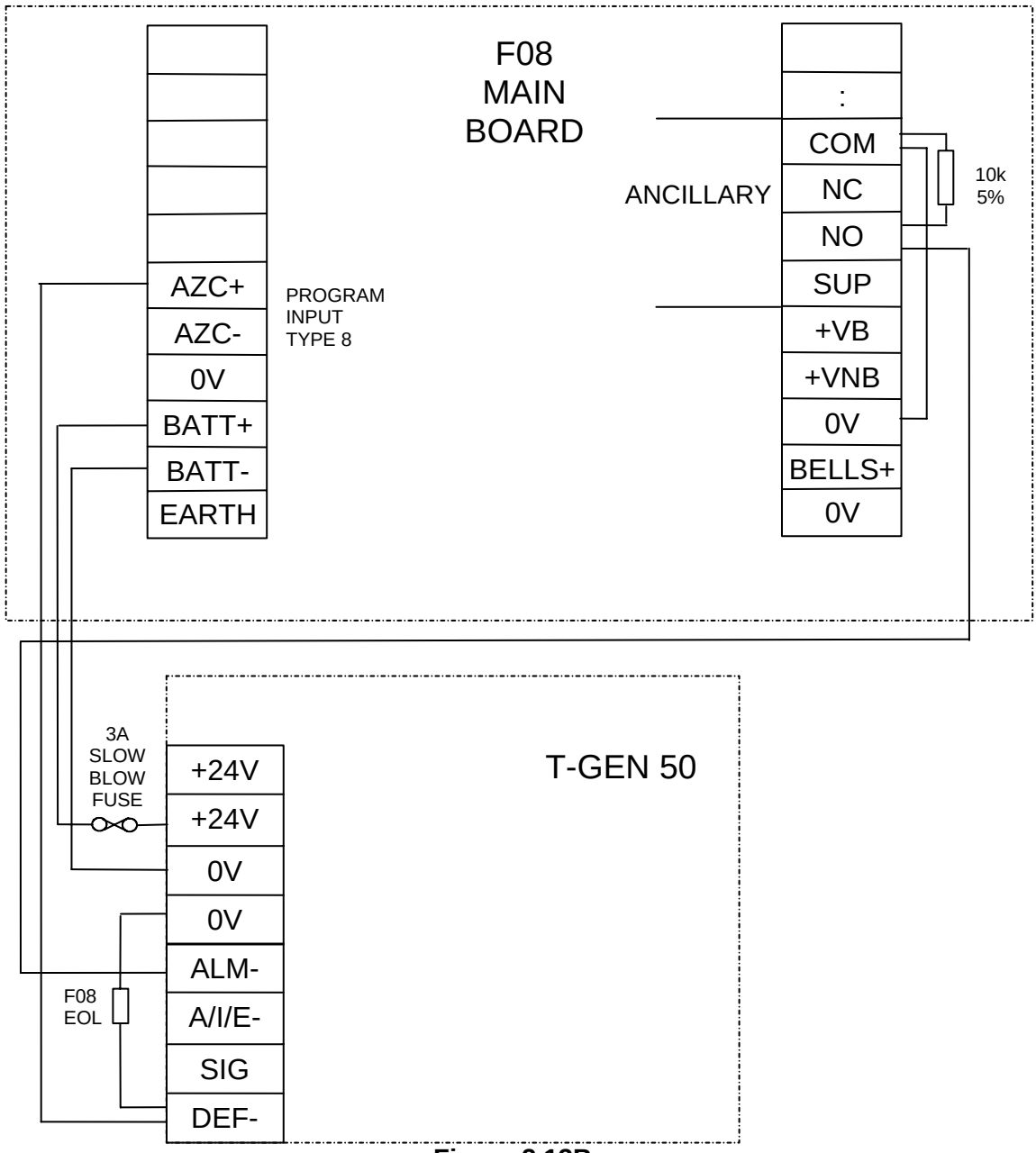


Figure 2.13B
F08 using T-GEN on Ancillary Relay

3) Connect T-GEN using the Alarm Relay.

As the F08's Brigade Interface has two Alarm contacts, the second set of contacts may be used to activate T-GEN as shown in Figure 2.13C.

This method has some limitations. All zones that are required to operate the T-GEN must be mapped to Master Alarm as well.

Pressing Silence will not silence T-GEN and this must be done through isolating all zones in alarm.

There is no way of performing a Test on the T-GEN, except by putting a zone into alarm.

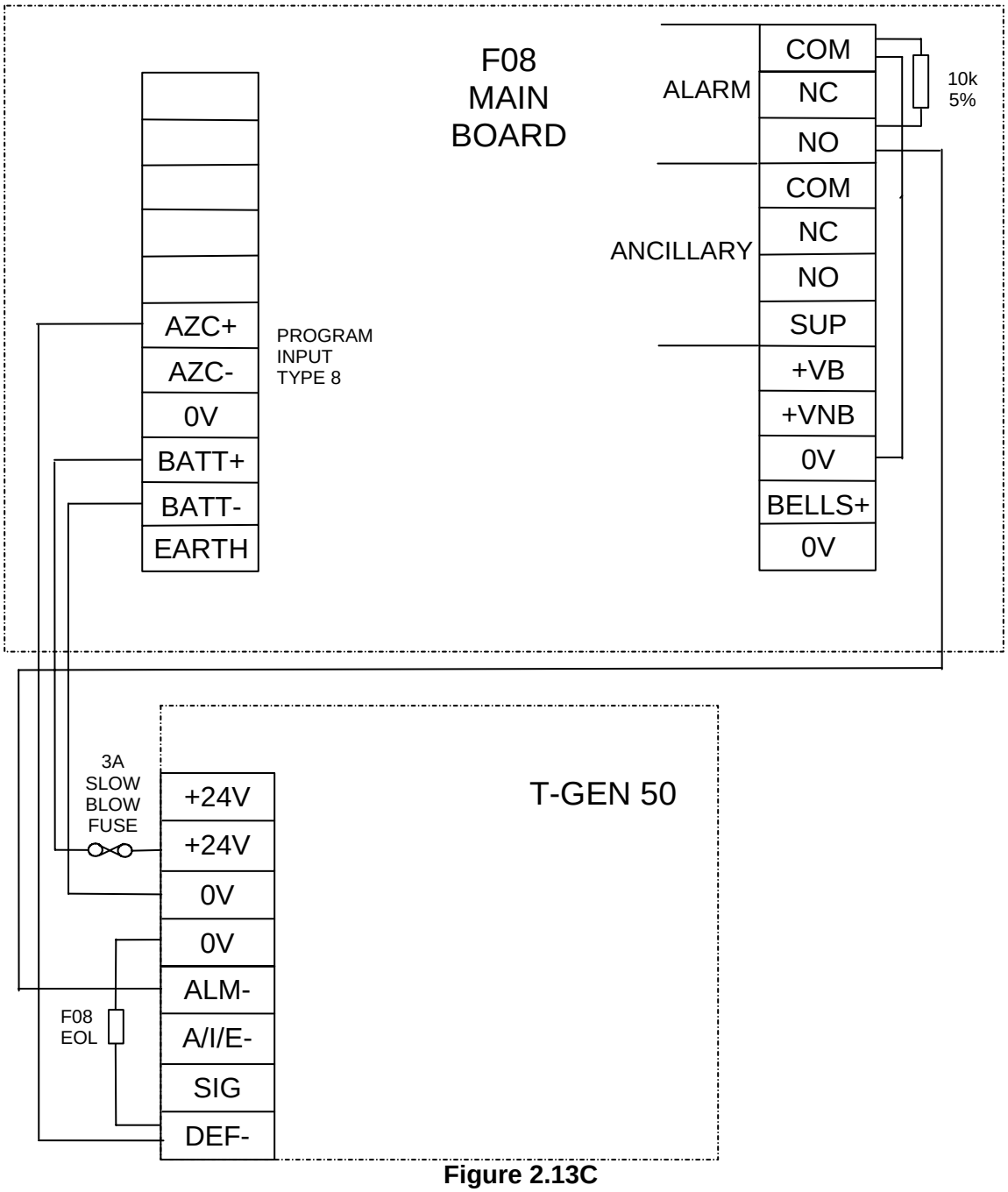


Figure 2.13C
F08 using T-GEN on Alarm Relay

4) Connect T-GEN using the Auxiliary Outputs.

The Ancillary outputs (Aux1 → Aux 8) may be used to operate T-GEN. The outputs must be programmed as isolatable otherwise there will be no way of silencing T-GEN apart from resetting the alarm condition. Also, Bells test will not operate T-GEN - a zone alarm test can be used instead.

Wire the Auxiliary output of each zone that is to operate T-GEN together and connect to T-GEN as per Figure 2.13D. These outputs are open collector, so they may be wired in parallel. Figure 2.13D shows the wiring for zones 1, 2 and 4 operating T-GEN

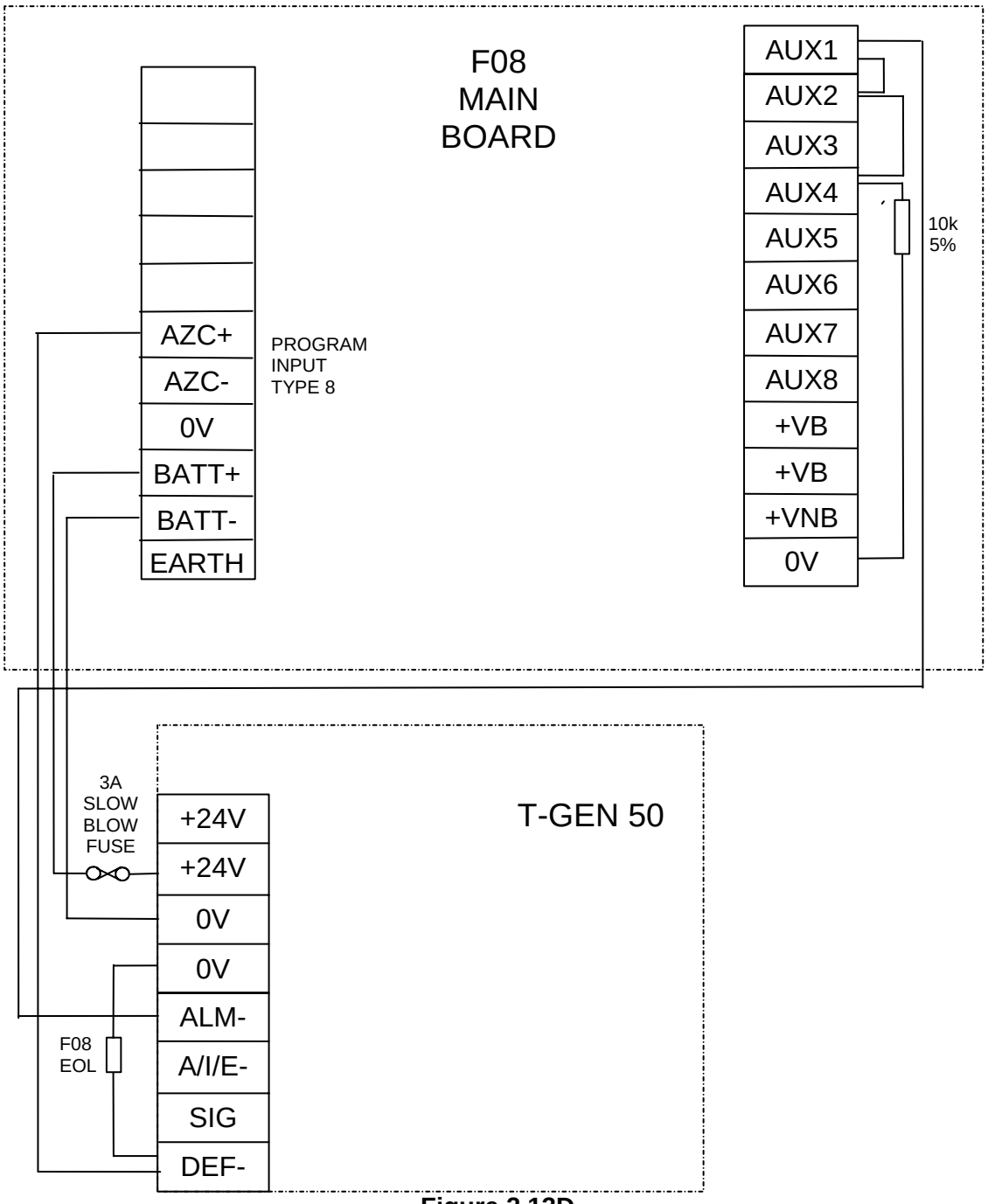


Figure 2.13D
F08 using T-GEN via Auxiliary Outputs

2.9 ANCILLARY RELAY OUTPUT WIRING

The "ANCILLARY" relay on connector block J8 provides voltage free changeover contacts. Terminals available are:

(a) COM - Common
(b) NC - Normally Closed
(c) NO - Normally Open
(d) SUP - Input for supervision (Not voltage free).

NOTES:

1) Maximum allowable load is 18 ohms (1.5 A). Note that the total load current available from the F08 is 1.5A.

2) Relay rating is 2 A @ 30 VDC resistive, 1 A inductive. Use interposing relay for higher loads.

3) Only ELV is allowed into the cabinet.

4) The supervision input can be programmed to supervise the integrity of the circuit to the controlled device. Allowable output load is 400 ohms to 4kohms. (A diode must be added to loads < 400 ohms).

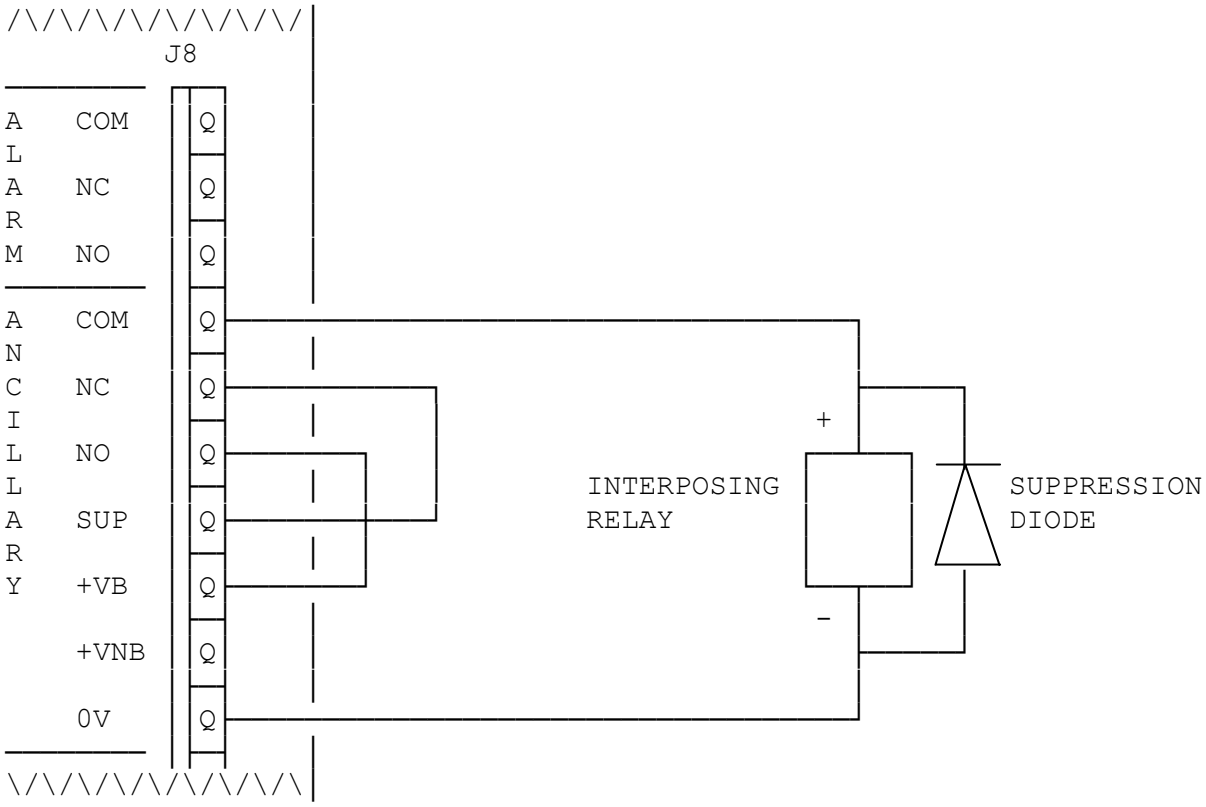
5) For supervised loads less than 400 ohms use a series diode, fitted at the load (observe polarity and ensure diode rating is compatible with the load current).

6) For inductive loads use a suppression diode rated at 50 Volts or greater and a current rating of:
   - 0.5 A for loads greater than 100 ohms
   - 1.0 A for loads greater than 30 ohms
   - 1.5 A for loads greater than 20 ohms

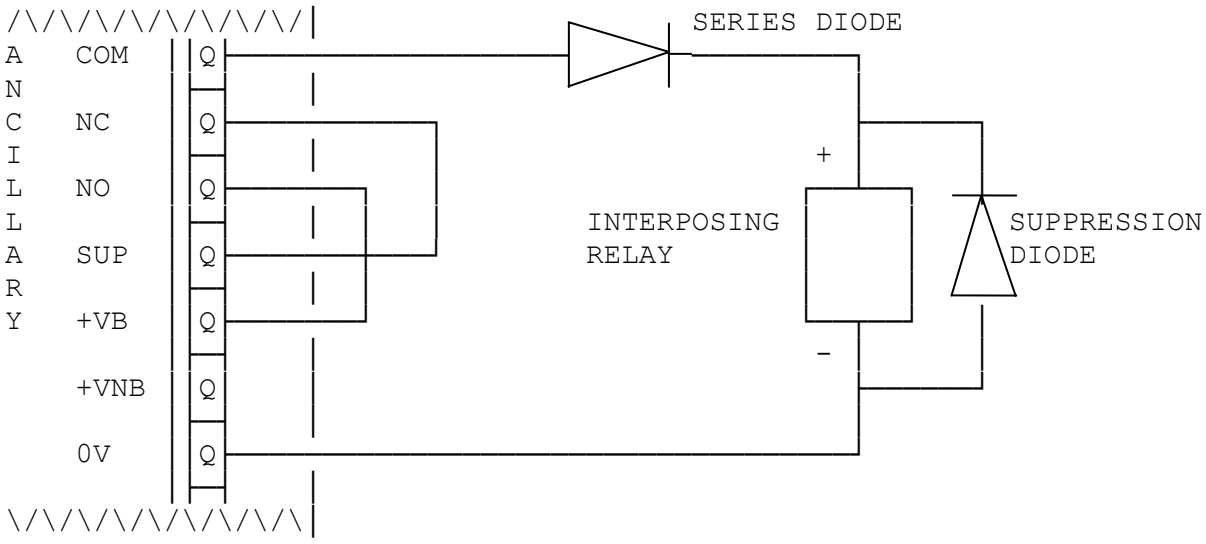
7) For voltage free or non supervised loads, ensure that no connection is made to the "SUP" input.

8) Figure 2.14 shows examples of wiring a device powered from the battery-backed +VB.

9) The Ancillary relay can be isolated via the keypad, but Master Alarm, Fault, and Isolate Relays cannot. They are however automatically isolated during System Test.



(A) Field Wiring for Interposing Device with a load Resistance greater than 400 OHMS



(B) Field Wiring for Interposing Device with a load Resistance less than 400 OHMS

Figure 2.14
Examples of Supervised Ancillary Output

2.10 AUXILIARY OUTPUT WIRING

The "OPEN COLLECTOR" Auxiliary Outputs (AUX1 to AUX8) must only be connected to external equipment via approved isolating devices such as relays or optoisolators mounted within the panel.

An example of how to wire an auxiliary relay from the battery-backed supply +VB is shown in Figure 2.15. In this example the relay turns on if zones 1 or 3 go into alarm.

NOTES:

(a) Use 24V devices, and allow for relay current in power requirement calculations.

(b) Use reverse E.M.F. suppression diode on relays.

(c) If a zone auxiliary output connects to more than one auxiliary relay, steering diodes must be fitted.

(d) An auxiliary open collector output may or may not be isolated when the corresponding zone is isolated depending on programming. Refer to Section 4.10.

(e) MAXIMUM current on each Auxiliary Output is 50 mA.

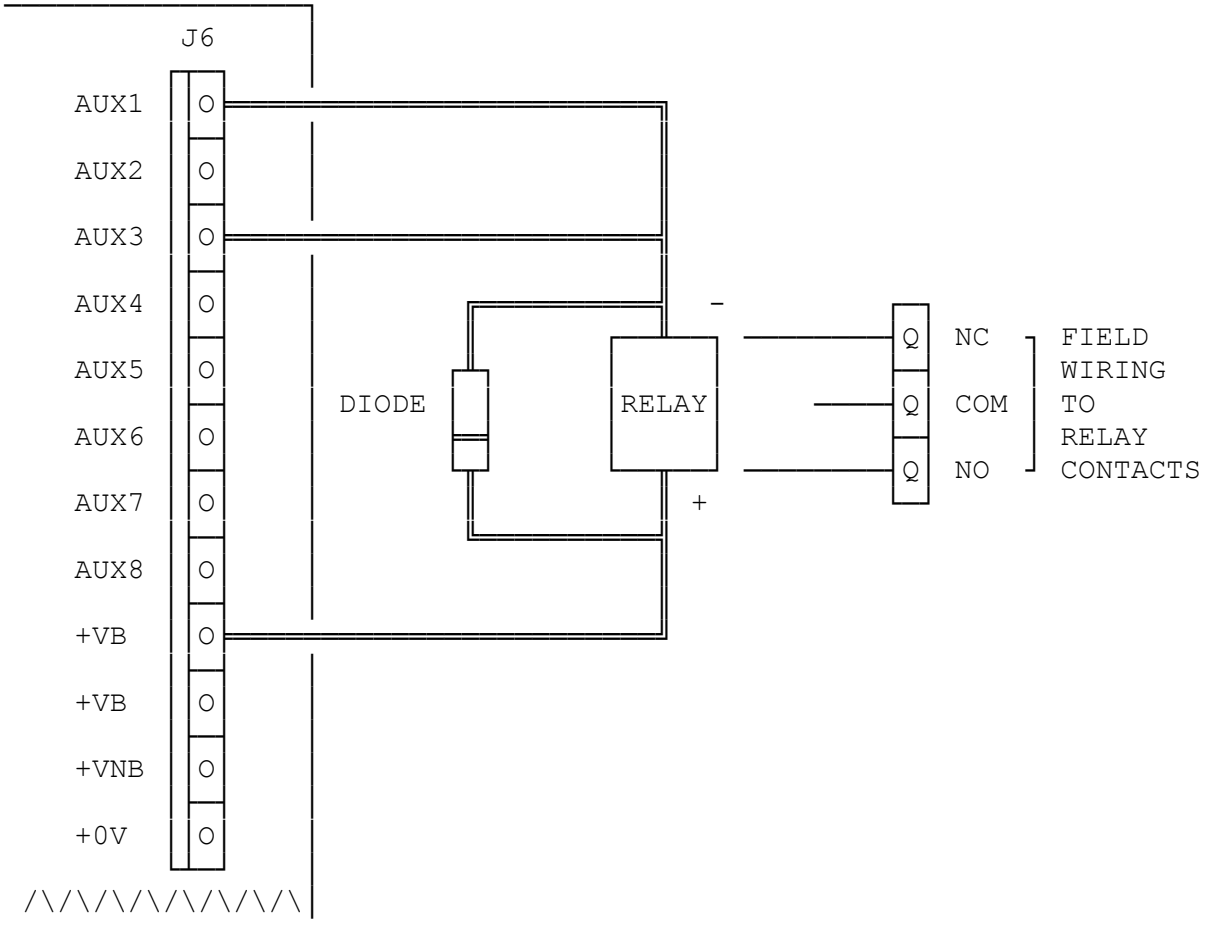


Figure 2.15
Example of Auxiliary Output Wiring

2.11 DOOR HOLDER WIRING

The second "ALARM" (FIRE) relay on connector block J8 provides clean changeover contacts suitable for Door Holder Power Supply connections. This operates on MASTER ALARM and cannot be isolated manually via the F08 keypad.

NOTES:

1) The Master Alarm Relay will only operate if the zone in alarm is programmed to be "mapped" to the Master Alarm Relay.

2) Use NON-BATTERY backed supply "+VNB" to power door holders.

3) "+VNB" rating is 1.5 A. (Note total F08 load must be < 1.5A).

4) Relay rating is 2 A @ 30 VDC resistive, 1A inductive.

5) Only ELV is allowed into the cabinet. Use an interposing relay located outside the F08 cabinet if switching anything other than ELV.

6) For inductive loads, use a suppression diode rated at 50 Volts or greater and with a current rating of:
   - 0.5 A, for loads greater than 100 ohms
   - 1.0 A, for loads greater than 30 ohms
   - 1.5 A, for loads greater than 20 ohms

7) Figure 2.16 shows an example of Door Holder wiring. Note the normally closed contact of the relay is used so that the door holders are de-energised on alarm.

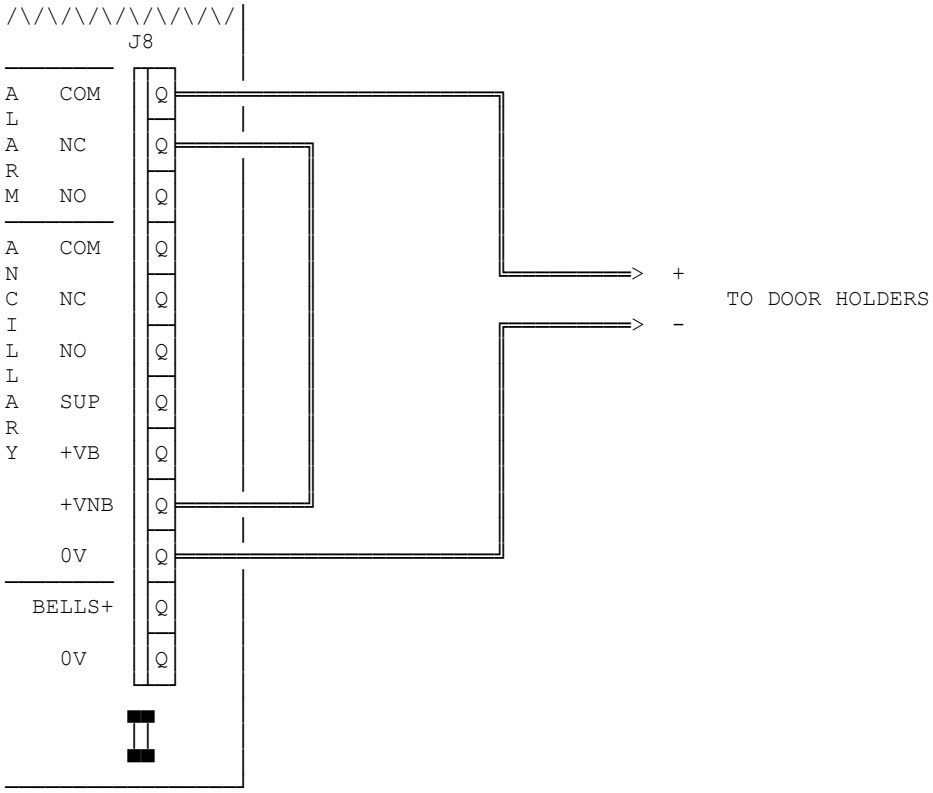


Figure 2.16
Example of Door Holder Wiring

2.12 BRIGADE INTERFACE RELAYS

The F08 FIP provides space below the Mains Transformer and Mains Switch for the installation of the Brigade Interfacing Devices.

A brigade interface bracket is available for fitting the following brigade interfacing units:

(a) Randata Deltec
(b) Mimimux Deltec
(c) Tyco Centaur ASE
(d) Line Isolating Unit; LIU001
(e) Torrens Transponder Unit
(f) Transponder Interface Adaptor; TIA001

The F08 provides four (4) sets of voltage free, changeover relay contacts at connector J7, as shown in Figure 2.17.

The four relays are detailed below.

2.12.1 "STANDBY" RELAY

(a) Normally energised coil, (COM closed to NO).

(b) The Standby Relay de-energises on battery flat voltage, complete battery power failure, watchdog timeout, or disconnection of the Display/Keyboard flat ribbon cable. (ie. COM switches from NO to NC).

(c) THIS RELAY MUST BE USED TO SIGNAL TO THE BRIGADE ON ANY OF THE ABOVE CONDITIONS, unless otherwise notified by the local Fire Authority.

(c) If no "STANDBY" signal is required by the local Fire Authority, it is recommended that a "LOCAL FAULT" alarm be activated by the "STANDBY" relay.

**** REMEMBER:** WHEN THE "STANDBY" RELAY DE-ENERGISES, THE SYSTEM IS INDICATING THAT IT IS NO LONGER AN OPERATIONAL FIRE ALARM PANEL.

2.12.2 "FAULT" RELAY

(a) Normally de-energised.

(b) The Fault Relay will energise on any non-isolated fault condition on a zone mapped to the "MASTER ALARM" or the supervised Ancillary Output. (COM switches from NC to NO). It will also energise on all enabled zones being isolated.

2.12.3 “ISOLATE” RELAY

(a) Normally de-energised.

(b) The Isolate Relay will energise on Isolation of any zone mapped to "MASTER ALARM" or the supervised Ancillary Output. (ie. COM switches from NC to NO).

2.12.4 “ALARM” RELAY

(a) Normally de-energised.

(b) The Alarm Relay will energise on an Alarm condition on any non-isolated zone that is mapped to "MASTER ALARM". (i.e. COM switches from NC to NO).

- Two sets of alarm contacts are provided, labelled "ALARM A" and "ALARM B".

  Normally "ALARM A" is used for brigade signalling and "ALARM B" is used for Door Holders or other alarm functions.

NOTES:

(a) Some brigade interfaces require +24 VDC and 0 VDC, use "+VBF" and "0V" terminals.

(b) Refer to instructions supplied with the Brigade interfacing units for connection details.

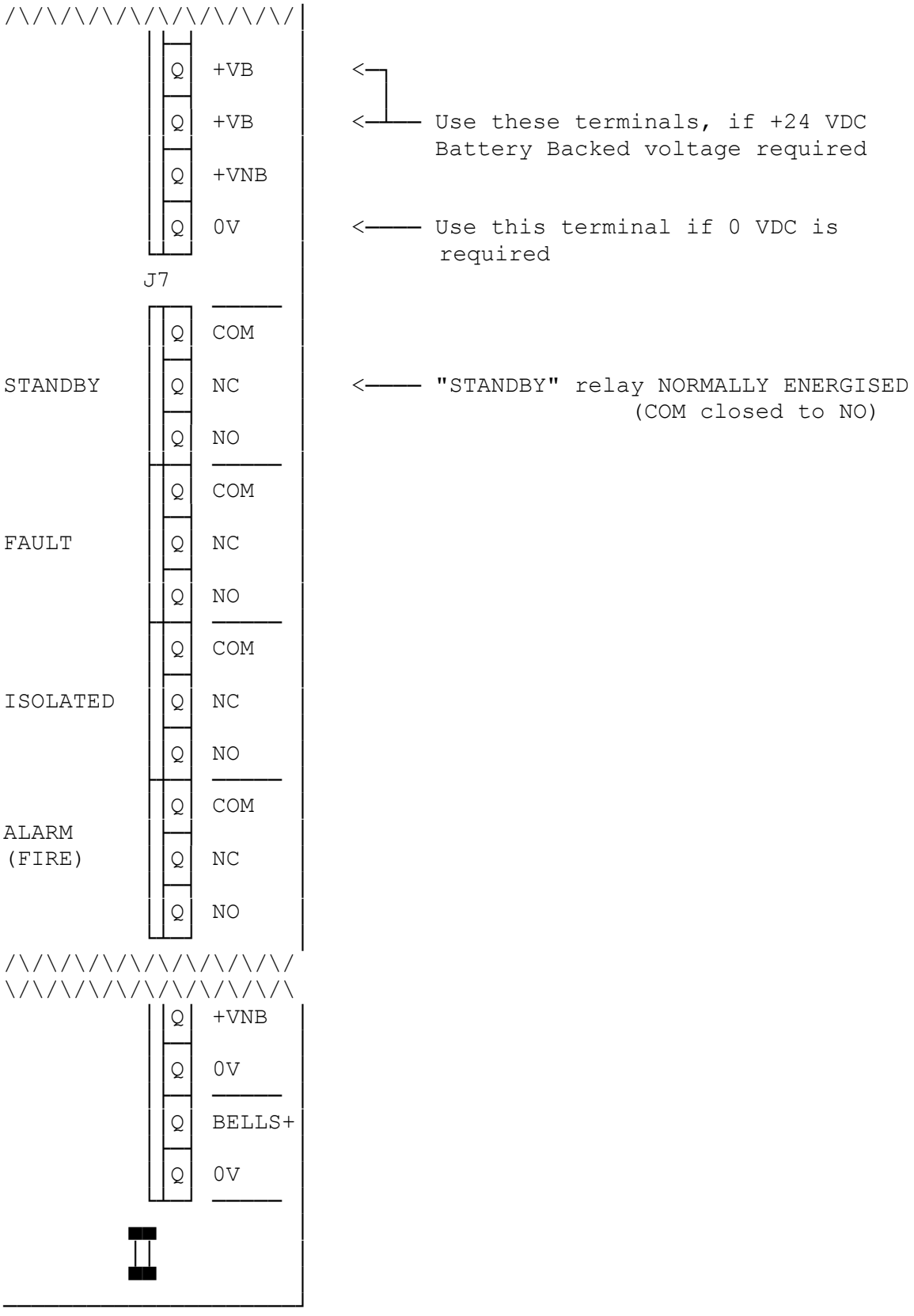

+VB
+VB
+VNB
0V
Use these terminals, if +24 VDC Battery Backed voltage required
Use this terminal if 0 VDC is required
J7
COM
STANDBY
NC
NO
"STANDBY" relay NORMALLY ENERGISED (COM closed to NO)
COM
FAULT
NC
NO
COM
ISOLATED
NC
NO
COM
ALARM (FIRE)
NC
NO
+VNB
0V
BELLS+
0V

Figure 2.17
Brigade Relay Termination

2.13 DISPLAY & ZONE LABELLING

2.13.1 ZONE NAMING LABEL

The F08 Zone Labelling can be simply done on a typewriter or word-processor.

Note: For a typewriter use a photocopy of the label supplied with the panel or provided in Appendix A.3.

The type format is:

6 lines per inch.
30 characters at 10 CPI or 36 characters at 12 CPI
Two and a half (2.5) lines between each zone window.

To install the Zone Naming label, loosen the four left hand-side screws that hold the Display Assembly onto the inner door. Insert the zone label behind the Keyboard mylar and adjust such that the zone labelling is aligned correctly. Fasten the four screws.

2.13.2 DISPLAY BOARD REMOVAL OR INSTALLATION

The F08 Display Board is attached to the rear of the internal door by five M4 x 12mm screws and flat washers.

To remove the display board simply unplug the display FRC from J1 on the Main Board, then remove all 5 screws.

Reverse the process to install the display board.

2.13.3 MYLAR REPLACEMENT

To replace the Keyboard Mylar requires the front six Phillips-Head screws on the inside door to be removed, leaving the center two to last.

The Display Board assembly has to be held whilst replacing the Mylar.

Replace the center two screws first and adjust the Mylar such that LEDs are aligned correctly. Fasten the two center screws first, then all other screws.

2.14 DOCUMENTATION

The following documentation MUST be included inside the F08 panel:

(a) F08 Operator's Manual

(b) A Maintenance Log-Book

(c) An "AS INSTALLED" fire detection system diagram and/or summary describing the installed layout of the F08 fire detection system.

3. PLACING INTO OPERATION

3.1 GENERAL

Before undertaking any placing into operation activities, inspect the unit interior visually. Check that all panel equipment is securely mounted and that all cables are connected at the appropriate points (see Figure 3.1).

3.2 MAINS ISOLATE SWITCH

To switch the F08 FIP ON or OFF, open the front protective door. The "MAINS ISOLATE SWITCH" is located at the bottom of the cabinet, to the right of the mains transformer. This switch controls the mains power supply to the panel, including the battery charger.

The normal position of this switch is ON and should only be turned OFF (ie MAINS ISOLATED), when testing that the FIP will run on batteries, or when servicing the unit.

NOTE: The Battery is not disconnected by the "MAINS ISOLATE SWITCH".

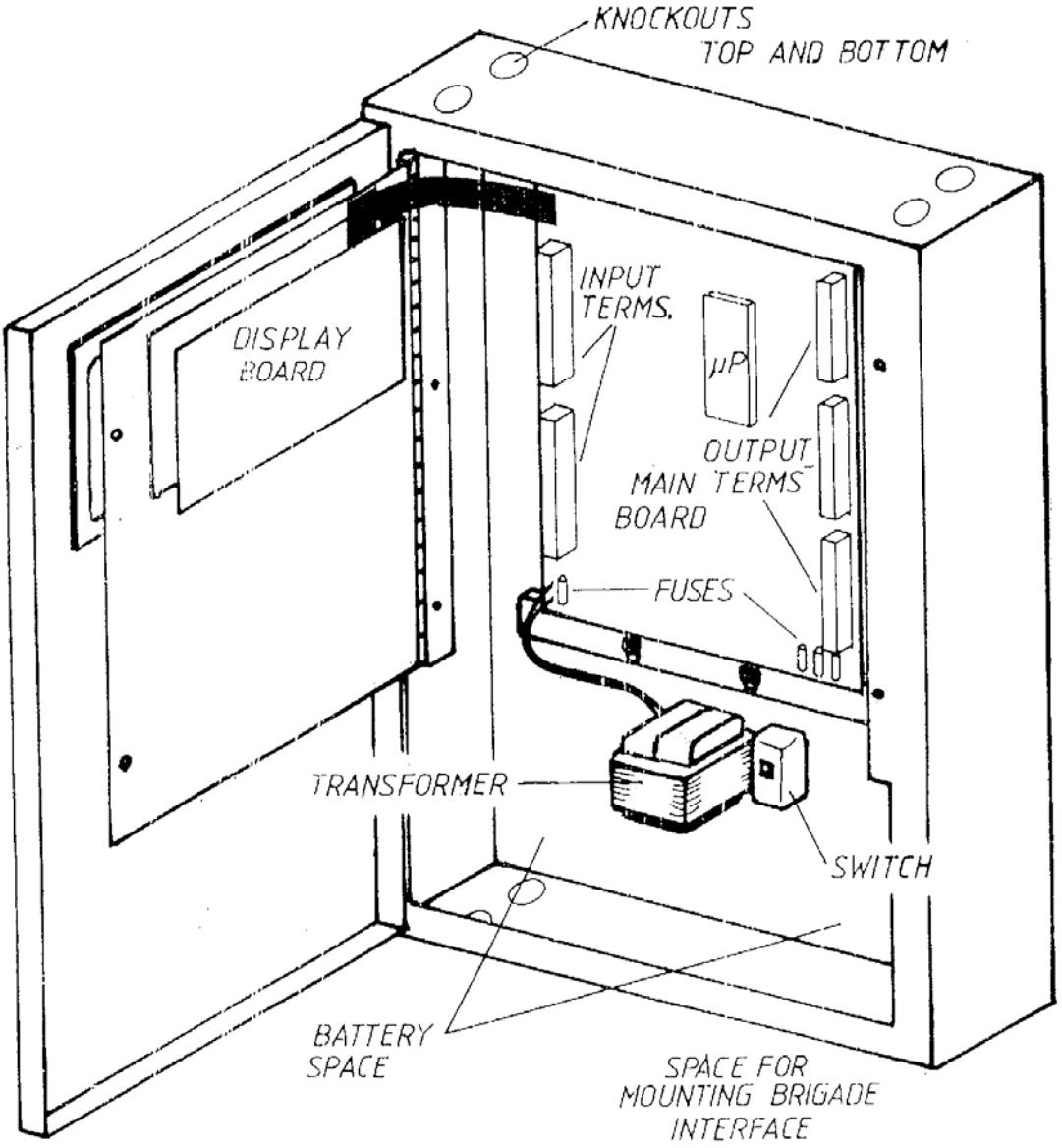


Figure 3.1
F08 Internal View

3.3 POWER UP

To place a correctly installed and programmed F08 FIP into operation perform the following steps:

STEP 1 : Ensure that the Mains Isolate Switch is OFF and that 240VAC is available to the panel from the mains distribution switchboard.

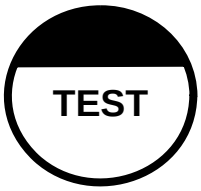
STEP 2 : Disconnect or physically isolate any outputs that must not be activated as a result of an alarm or fault during commissioning. Eg Fire Brigade, Alarm Bells or Suppression System.

STEP 3 : Turn the Mains Isolate Switch ON.

STEP 4 : Check that the green "MAINS ON" LED indicator is illuminated and all other LED indicators are OFF.

STEP 5 : Perform a System Test.

(a) With the FIP in GLOBAL mode (all "SEL" LED indicators OFF)

Press the 

key once.

(b) The amber "ISO" LED indicators for Ancillary Relay, Master Alarm and Alarm Bells will illuminate.

(c) After 5 seconds all LED indicators will illuminate and the internal sounder will produce a steady tone for a period of 2 seconds.

(d) A fault test will be carried out on each enabled and non-isolated zone, stepping through zones by illuminating the "SEL" and "FLT" LED indicators.

(e) An alarm test will be carried out on each enabled and non-isolated zone, stepping through zones by illuminating "SEL" and "ALM" LED indicators.

(f) All indicators turn off. (Except MAINS ON)

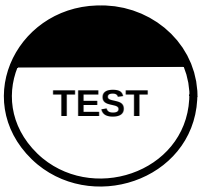
(g) If a zone fault or alarm occurs during the test or the test fails, then check the AZC connections.

STEP 6 : Install and connect the batteries.

POWER UP (CONTINUED)

STEP 7 : Perform a Battery Test.

(a) Select Battery/Charger (By pressing SELECT until the Battery/Charger "SEL" indicator is illuminated).

(b) Press the 

key once.

- The Battery/Charger "SEL" indicator will flash to indicate a battery test is in progress.
- The test will take 1 minute to complete.

(c) If the Battery test fails the amber "FLT" LED indicator will flash;

i. Check battery connections;

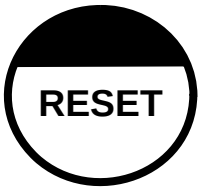
ii. If the battery is flat, leave on charge for 24 hours and retest.

iii. Check Battery Low Monitoring circuit for correct operation.

STEP 8 : Perform an MCP test.

(a) Insert the plastic MCP test key into the MCP for a period of 2 to 3 seconds.

(b) The zone that the MCP is wired to should indicate an alarm by flashing its "ALARM" LED and any programmed outputs should operate.

(c) Press the 

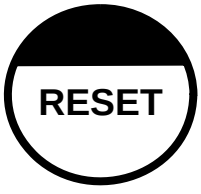
key once to clear the ALARM.

(d) Disconnect a wire at the MCP.

(e) The zone that the MCP is wired to should indicate a fault by a steady "FLT" LED.

(f) Re-connect the wire to the MCP.

(g) Press the SELECT key until the MCP zone is selected.

Press the 

key once to clear the FAULT.

3.4 COMMISSIONING CHECKLIST

The commissioning of an F08 FIP is the most important phase of any contract.

If any problems are not corrected in this stage, experience shows that even the simplest of mistakes can cause major problems over a long period of time.

The following procedure should be regarded as the minimum requirements for a commissioning check.

Please complete this checklist carefully. Some major points to be noted are:

1. Ensure that the F08 FIP is correctly programmed to meet statutory requirements and the Customer's specifications.

2. Ensure the INSTALLATION meets the standards defined by AS1670.1 and any other local standards.

3. Ensure that the "AS INSTALLED" drawing represents the TRUE site installation, complete with;

   (a) Detector location and types.
   (b) F08 FIP Programmed Configuration.

4. Ensure that a copy of the "AS INSTALLED" drawing is included inside the panel for maintenance purposes.

5. Ensure that a copy of the "F08 OPERATOR'S MANUAL" is included inside the panel and the system detail pages are completed.

6. Ensure that interface devices are connected to the "AUXILIARY OUTPUTS" if these outputs are used externally.

7. Ensure that only APPROVED brigade interfacing devices are connected to the brigade relays; "STANDBY", "FAULT", "ISOLATE", and "ALARM" (FIRE).

   - Approved interfaces include:

   (a) Randata Deltec
   (b) Minimux Deltec
   (c) Torrens Transponder
       via Transponder Interface Adapter - TIA001
   (d) Line Isolating Unit - LIU001
   (e) MFB - Alarm Interface Unit.
   (f) Tyco Fire Monitoring - Centaur.

8. Ensure that all ENABLED ZONES, ANCILLARY RELAY and ALARM BELLS can be isolated.

9. Ensure batteries are charged and that a battery test passes. Turn off the mains switch and check the system operates off the batteries.

COMMISSIONING CHECKLIST (CONTINUED)

10. Ensure System and Zone Tests perform satisfactorily.

11. Verify the programming, wiring and operation of the system.
Ie Check for each zone:

    a) Alarm and fault conditions can be generated.

    b) The alarm delay is as the input type. Ie Normal, AVF, 1668 or Flow Switch.

    c) The zone is enabled and latching or non-latching as required.

    d) The appropriate outputs (Ancillary Relay, Auxiliary, Brigade and bells) operate as programmed or wired.

    e) The Ancillary Relay supervision detects open and short circuit faults, if it is enabled.

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4. PROGRAMMING

4.1 PROGRAMMING FEATURES

The F08 FIP provides a "PROGRAMMING MODE" so that the installer can configure the panel to meet specified input and output requirements.

Programming should only be carried out by a suitably qualified FIRE-PROTECTION technician or engineer.

If the F08 FIP was pre-programmed prior to delivery, it may **NOT NEED TO BE RE-PROGRAMMED** in the field.

The F08 "PROGRAMMING MODE" provides four (4) programming functions with the programming keys and indications summarised in Tables 4.1 and 4.2.

FUNCTION 1; ZONE OUTPUT MAPPING
This programming function allows the programmer to select which of the zone inputs will operate each of the following outputs:

i. Ancillary Relay
ii. Master Alarm
iii. Alarm Bells.

FUNCTION 2; ZONE LATCHING / NON-LATCHING
This programming function enables the programmer to select zone inputs as alarm state latching or non latching and fault state latching or non-latching.

FUNCTION 3; ZONE INPUT TYPE
This programming function enables the programmer to select for each zone, one of the following input types. (Refer Section 2.7.2 for a full description):

i. 2 second transient suppression delay to alarm (default). Both detectors and 15V MCP allowed on circuit.
ii. AVF/RAD 16 second delay to alarm for detectors, 2 second delay to alarm for 15V MCP.
iii. AS1668 SAD. Delay into alarm 2 seconds. Delay out of alarm 60 seconds. Detector is non-latching and zone should be programmed as non-latching.
iv. AS1668 AVF/SAD. 16 second AVF delay into alarm. Delay out of alarm 60 seconds. Detector is non-latching and zone should be programmed as non-latching.
v. Flowswitch. 20 second delay into alarm. No delay out.
vi. 2 second delay to alarm. Detectors only. MCP not allowed. 13-17V band indicates fault. This circuit type is used to provide line leakage fault indication.
vii. AVF/RAD 16 second delay into alarm. Detectors only - MCP not allowed. 13-17V band indicates fault. This circuit type is used to provide line leakage fault indication.
viii. Fast alarm - 0.5 seconds delay into alarm for supervisory contact with 15V zener diode. This is typically used for sub-panel monitoring. 0-13V band indicates fault.
ix. Fast alarm - 500 milliseconds delay into alarm for 0-13V band. 13-17V band is normal for 15V loop powered circuit.
x. Delay into alarm is 2 seconds for 13-17V band. 0-13V band is normal for normally closed (S/C) circuit.

PROGRAMMING FEATURES (CONTINUED)

FUNCTION 4; ZONE & ANCILLARY RELAY SUPERVISION - ENABLED / DISABLED; AUXILIARY ZONE OUTPUT OPERATION MODE

This programming function enables the programmer to select which zone inputs are enabled and also select whether or not the Ancillary Relay Output is Supervised. Disabled zones do not require EOL units and are inhibited from any zone or system tests.

This function is also used to select whether or not isolating a zone forces the auxiliary zone output to be off - this is a single global parameter which applies to all eight zones.

FUNCTION	PRESS KEY	COMMENTS
ENTER PROGRAMMING MODE	PROGRAM	Located on Main Board PRESS & HOLD FOR 4 BEEPS -Zone Output Mapping entered for "ANCIL RELAY"
EXIT PROGRAMMING MODE	PROGRAM	Sounder on Continuously -Select one EXIT FUNCTION:
1. EXIT WITHOUT SAVING CHANGES	TEST	Parameters NOT changed -EXITS TO NORMAL OPERATION
2. EXIT AND SAVE CHANGES	SELECT	Parameters SAVED in EEPROM with any changes made. -EXITS TO NORMAL OPERATION
3. RESET TO DEFAULT PARAMETERS	RESET	Parameters forced to default state. -REMAINS IN PROGRAMMING MODE

Table 4.1
Programming Key Summary - Entering/Exiting Programming Mode

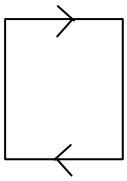
	FUNCTION	PRESS KEY	INDICATED BY
1.	Enter into Zone Output Mapping	TEST	Ancil Relay “SEL” LED Flashing Output “ISO” LEDs Flashing
	Select Output for Mapping	TEST	Selected Output “SEL” LED Flashing
	Select Zones	SELECT	Selected Zone “SEL” LED ON Output “SEL” LED Flashing
	Zone Mapped to Selected Output	TEST (TOGGLE)	“ALM” LED Steady = MAPPED “ALM” LED Off = NOT MAPPED
2.	Enter into Zone Latching/ Non-Latching Programming	RESET	Selected Zone “SEL” LED ON Zone fault state non-latching indicated by zone fault LED ON. Zone alarm state non-latching indicated by zone alarm LED ON.
	Select Zone	SELECT	Selected Zone “SEL” LED ON
	Toggle as Latching or Non-Latching	RESET (CYCLES)	Fault/Alarm LED ON = Non-latching, LED OFF = Latching.
3.	Enter into Zone Input Type Programming	SILENCE	Selected Zone “SEL” LED ON “FLT”, “ALM”, & “ISO” LEDs ON for Zone 1 - 8, 8 + 1, 8 + 2
	Select Zone	SELECT	Selected Zone “SEL” LED ON
	Select Zone Delay	SILENCE 	“FLT”, “ALM”, & “ISO” LEDs ON for: ZONE 1 = Default 2s transient ZONE 2 = AVF/RAD ZONE 3 = 1668 SAD ZONE 4 = 1668 AVF/SAD ZONE 5 = FSI 20 second ZONE 6 = 2 secs alarm. No MCP ZONE 7 = AVF/RAD. No MCP ZONE 8 = Fast alarm with supervision ZONE 8+1= Fast alarm, 15V loop pwr ZONE 8+2=2 Secs alarm, S/C = nml
4.	Enter into Enabling or Disabling Zones, and Ancillary Relay Supervision	ISOLATE	Selected Zone “SEL” LED ON Disabled Zones indicated by zone “ISO” LED ON ANCIL RELAY Supervision Disabled if “ISO” LED ON Zone auxiliary outputs are “isolatable” if Master Alarm “ISO” LED ON.
	Select Zone	SELECT	Selected Zone “SEL” LED ON
	Select Zone as Enabled or Disabled OR Select Ancil Relay Supervision as Enabled or Disabled OR Select Zone Auxiliary output isolatable or not.	ISOLATE (TOGGLE)	“ISO” LED ON = Zone Disabled “ISO” LED OFF = Zone Enabled “ISO” LED ON = SUP. Disabled “ISO” LED OFF = SUP. Enabled Master Alarm “ISO” LED ON = isolatable, OFF = output ignores zone isolate

Table 4.2 - Programming Key Summary - Programming Mode Enabled

4.2 ENTERING PROGRAMMING MODE

Located at the top left hand side of the main board is a push-button labelled "PROGRAM".

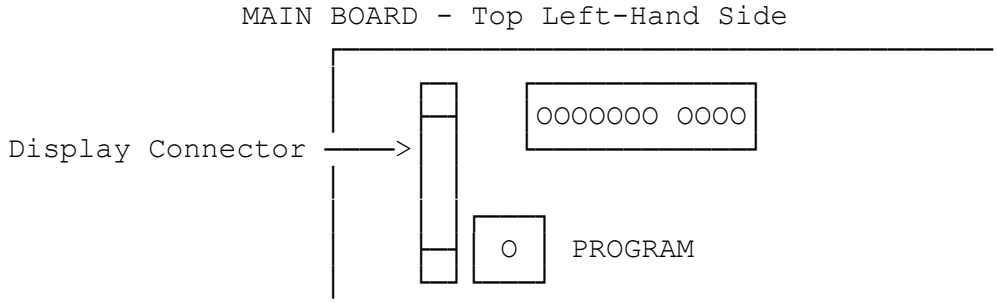


Figure 4.1
Location of "PROGRAM" pushbutton

TO ENTER "PROGRAMMING MODE":

Press and hold the "PROGRAM" pushbutton key for four (4) beeps of the sounder.

- All output amber "ISO" LEDs start flashing.
- The "ZONE OUTPUT MAPPING" programming function is automatically selected upon entry into the "PROGRAMMING MODE".
- The green "SEL" indicator of ANCILLARY RELAY starts flashing.
- Zones that are mapped to ANCILLARY RELAY are indicated by their "ALM" zone LEDs being ON.

* * PLEASE NOTE * *

"PROGRAMMING MODE" cannot be activated if:

1) A system test is currently being performed;
2) A zone test is being performed;
3) Any zone has an unsilenced and non-isolated alarm or fault condition;
4) A battery test is currently being performed; or
5) Any key is depressed.

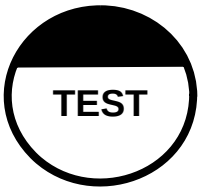
4.3 EXITING PROGRAMMING MODE

4.3.1 WITHOUT SAVING CHANGES

This sequence exits "PROGRAMMING MODE" without saving any changed parameters. I.E. the system returns to normal operation with the same parameters that existed prior to entering the programming mode.

Press the "PROGRAM" pushbutton key once to exit "PROGRAMMING MODE".

- A steady tone sound will be heard.



Press the "TEST" key once within 4 minutes of pressing the "PROGRAM" pushbutton.

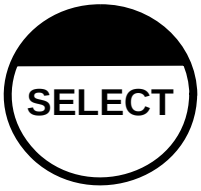
- "PROGRAMMING MODE" is terminated.
- The sounder will turn off.
- Panel indicators will return to the state prior to entering "PROGRAMMING MODE".
- SELECT will be in global mode.
- All changes made during "PROGRAMMING MODE" will be lost.

4.3.2 SAVING CHANGES

This sequence exits "PROGRAMMING MODE", saves all changed parameters in EEPROM and returns the system to normal operation.

Press the "PROGRAM" pushbutton key once to exit "PROGRAMMING MODE".

- A steady tone sound will be heard.



Press the "SELECT" key once within 4 minutes of pressing the "PROGRAM" pushbutton.

- "PROGRAMMING MODE" is terminated.
- The sounder will turn off.
- Panel indicators will return to the state prior to entering "PROGRAMMING MODE".
- SELECT will be in global mode.
- Any DISABLED ZONE which was programmed to be enabled will now be isolated.
- All programmed changes will now be in effect.

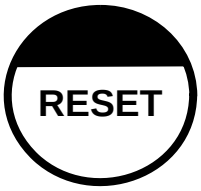
4.4 RESET TO DEFAULT PARAMETERS

This sequence returns all programmable system parameters to the following default settings, but leaves the user in "PROGRAMMING MODE" still.

(a) All zones enabled.
(b) All zones latching for both alarms and faults.
(c) All zones have an Input Type of 1 - default 2 second delay.
(d) All zones mapped to all outputs.
(e) Ancillary Relay is NOT supervised.
(f) Zone auxiliary outputs are isolatable.

Press the "PROGRAM" pushbutton key once to exit "PROGRAMMING MODE".

- A steady tone sound will be heard.



Press the "RESET" key once within 4 minutes of pressing the PROGRAM" pushbutton.

- The sounder will beep 4 times.
- All Output amber "ISO" LEDs will be flashing.
- All zone "SEL" LEDs will be flashing.
- All zone "SEL" LEDs stop flashing and the "OUTPUT MAPPING" programming function is automatically selected.
- The green "SEL" indicator of the ANCILLARY RELAY starts flashing.
- All zone "ALM" LEDs are turned ON.
- The Fault relay will energise as all zones are isolated as a result of the parameter reset function.

4.5 PROGRAMME ZONE TO OUTPUT MAPPING

4.5.1 FUNCTION

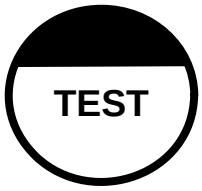
Selects which zone inputs will activate the following outputs:

a) "ANCILLARY RELAY"
b) "MASTER ALARM"
c) "ALARM BELLS".

When a zone input is mapped to an output, that output will be turned on if an alarm is detected on the zone and it is not isolated. If the zone is mapped to the MASTER ALARM output, then a fault or isolation on the zone will operate the respective brigade relay output.

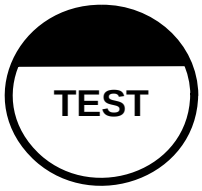
4.5.2 ENTERING THIS MODE

This function is automatically selected upon entry to "PROGRAMMING MODE" or after performing a "PROGRAMMING RESET" function. If in any other programming function, perform the following steps to enter this mode.

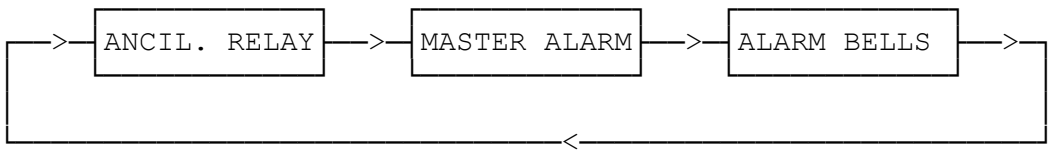


Press the "TEST" key once.

- The green "SEL" LED flashes on "ANCILLARY RELAY" as the first output selected.
- All zones mapped to the "ANCILLARY RELAY" will be indicated by the zone "ALM" LED being ON.
- The amber "ISO" LEDs on ANCILLARY RELAY, MASTER ALARM and ALARM BELLS will be flashing.

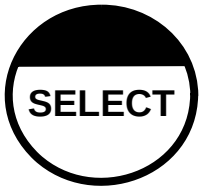


Press the "TEST" key to rotate around the three outputs until the required output is selected, indicated by its "SEL" LED flashing.



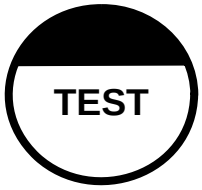
- Zones mapped to the selected output will be indicated by their zone "ALM" LED being ON.

4.5.3 MAPPING ZONES TO SELECTED OUTPUT



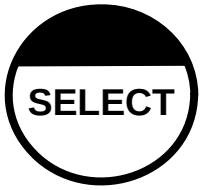
Press the "SELECT" key once.

- Zone 1 "SEL" LED will turn ON.
- Selected Output "SEL" LED continues to flash.



Press the "TEST" key to toggle the mapping state.

- "ALM" LED ON = Zone mapped to output.
- "ALM" LED OFF = Zone not mapped to output.



Press "SELECT" key to select zones 2 to 8.

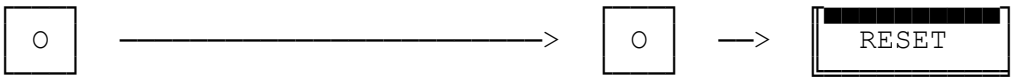
- Zone "SEL" LED illuminated indicates zone selected.

****** After pressing the "SELECT" key on zone 8, a BLANK POSITION will be selected, where no zone "SEL" LEDs are turned ON.

- In this position the "TEST" key may be pressed to select another output.

4.5.4 EXAMPLE 1

Enter "PROGRAMMING MODE", then reset the parameters to default as shown below:



Hold "PROGRAM" for 4 Beeps to enter Programming Mode

Press "PROGRAM" Again" then Press "RESET" key once to reset parameters.

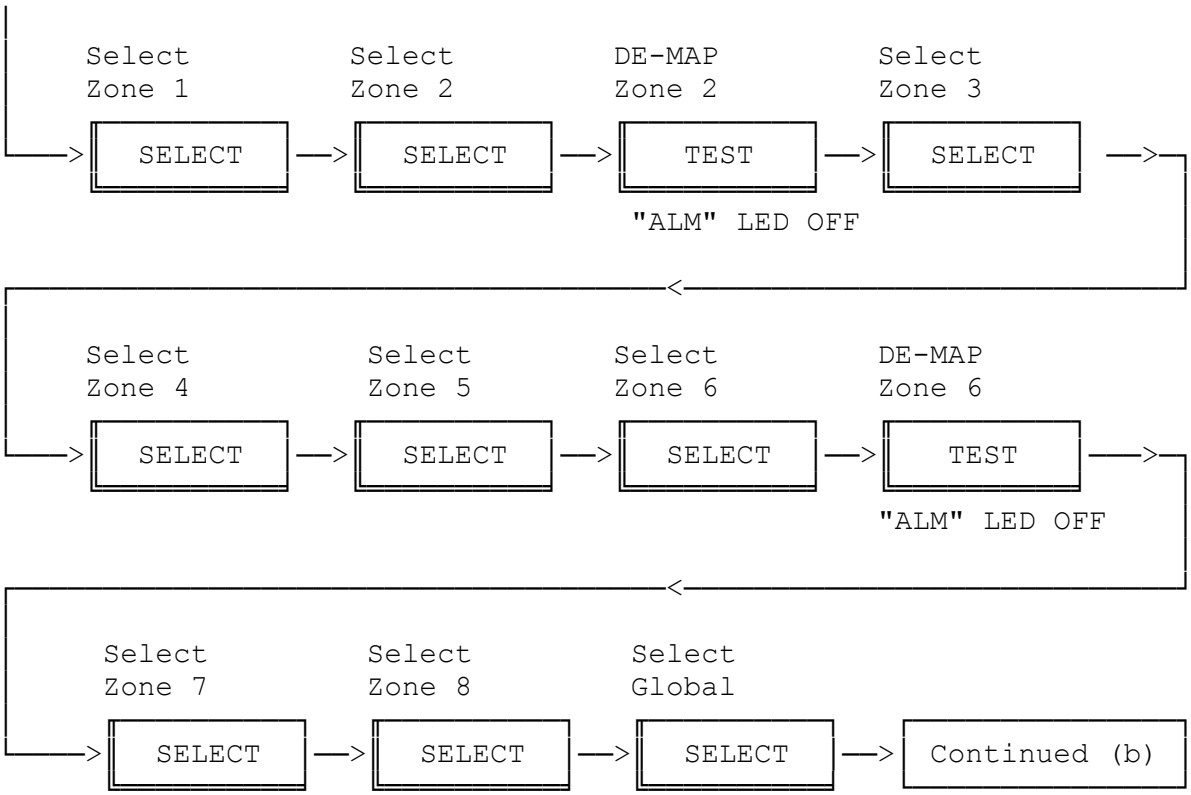
"PROGRAMMING MODE" will automatically be in ZONE OUTPUT MAPPING function.

Follow the following keypad steps to select the following mapping:

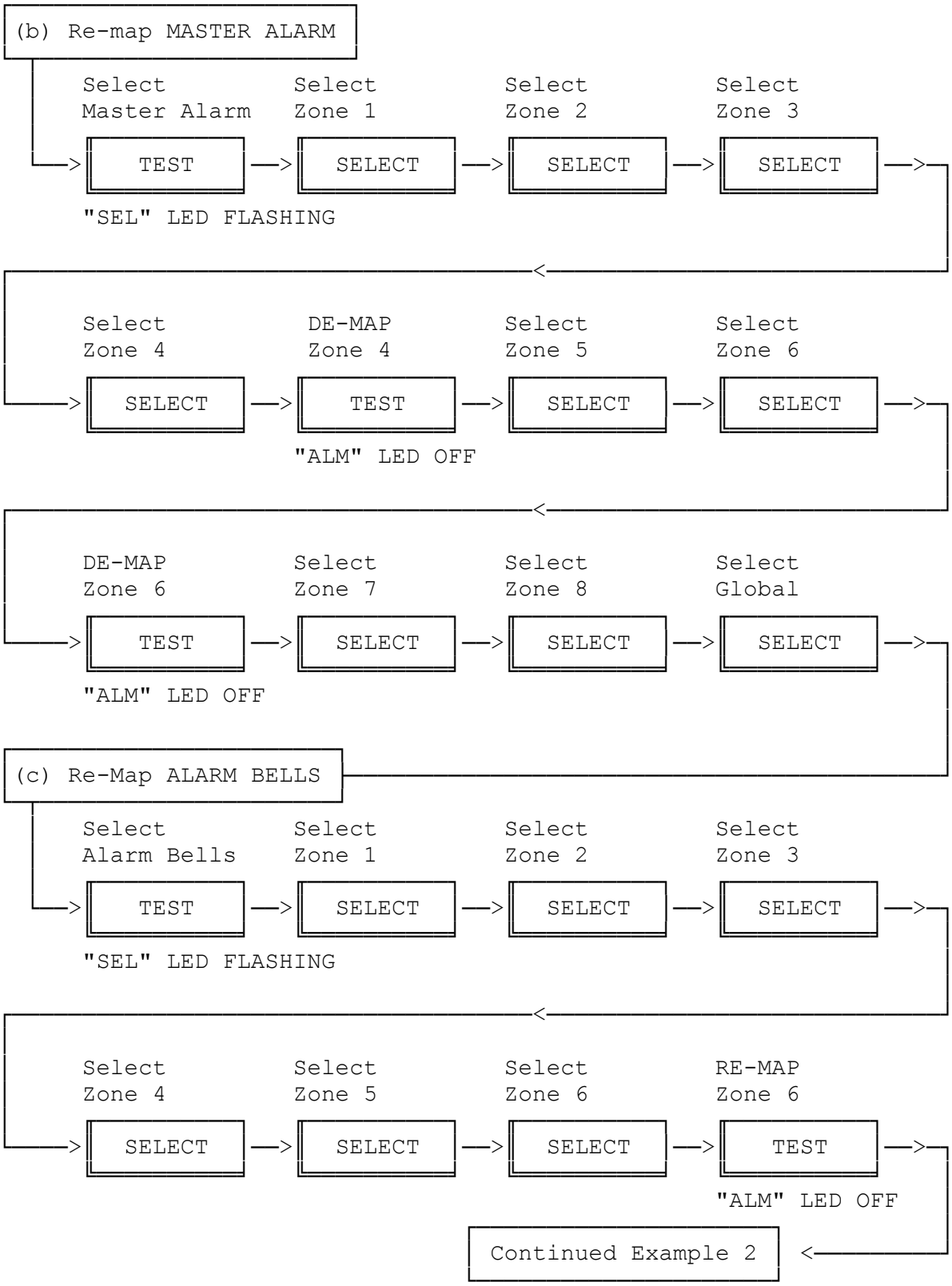
(a) ANCILLARY RELAY is operated by all zones except 2 and 6.
(b) MASTER ALARM is operated by all zones except 4 and 6.
(c) ALARM BELLS is operated by all zones except 6.

As the default setting is all zones mapped to all outputs it is only necessary to "de-map" those zones not required for each output.

(a) Re-map ANCILLARY RELAY



EXAMPLE 1 (CONTINUED)



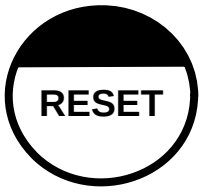
4.6 PROGRAMMING ZONES AS LATCHING OR NON-LATCHING

4.6.1 FUNCTION

This function selects which zone inputs will be latching or non-latching for ALARM and latching or non-latching for FAULT. I.e. if the alarm state is programmed as latching, it means that the zone will remain in alarm after the alarm condition has been removed from the circuit input, and must be reset by an operator. If the fault state is programmed as latching it means that the zone will remain in fault after the fault condition has been removed from the circuit input, and must be reset by an operator.

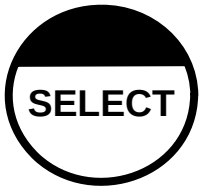
* DEFAULT: ALARM AND FAULT BOTH LATCHING

4.6.2 OPERATING STEPS

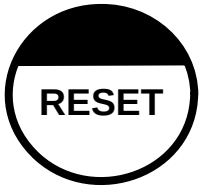


Press the "RESET" key once.

- All zones for which the alarm state is non-latching will have their ALARM LED on and all zones for which the fault state is non-latching will have their FAULT LED on.
- The green "SEL" LED will be on for the last zone selected or otherwise, zone 1.
- Amber "ISO" LEDs on ANCILLARY RELAY, MASTER ALARM and ALARM BELLS will be flashing.



Press the "SELECT" key until the green "SEL" LED indicator is at the required zone.



Press the "RESET" key to cycle the zone Latching/Non-latching states through the four states as follows:

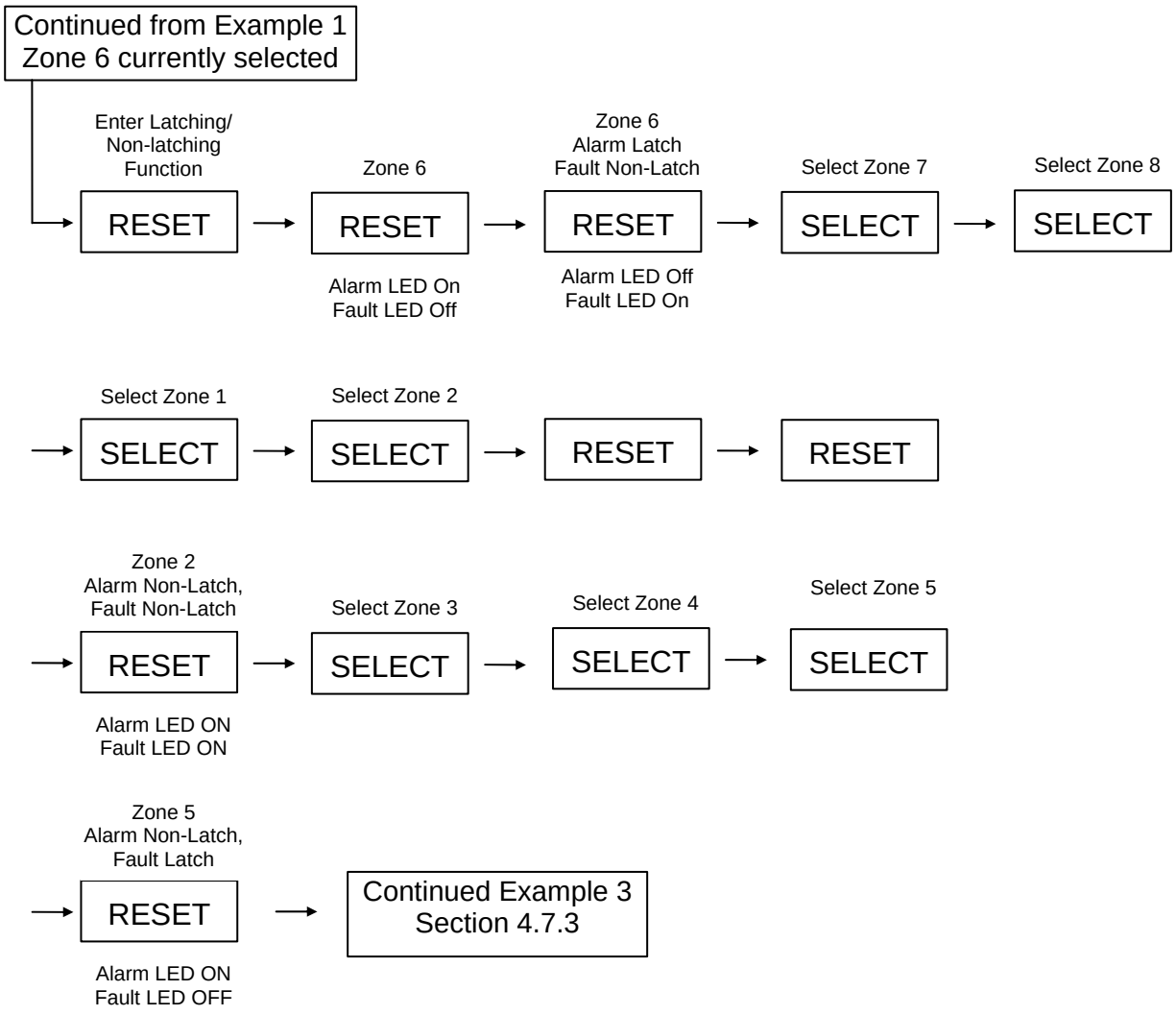
Alarm and Fault both latching : Alarm and Fault LEDs OFF
Alarm non-latching, Fault latching : Alarm LED ON Fault LED OFF
Alarm latching, Fault non-latching : Alarm LED OFF, Fault LED ON
Alarm non-latching, Fault non-latching : Alarm LED ON, Fault LED ON

* Press the "SELECT" key to move to other zones or press "TEST", "SILENCE", or "ISOLATE" keys to perform other programming functions.

4.6.3 EXAMPLE 2

Continuing from example 1, perform the following keypad steps to select:

Zone 6 - alarm latch, fault non-latch
Zone 2 - alarm non-latch, fault non-latch
Zone 5 - alarm non-latch, fault latch



4.7 PROGRAMMING ZONE INPUT TYPE

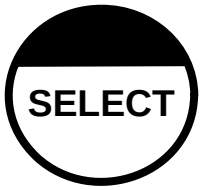
4.7.1 FUNCTION

This function programs each zone with an input type. The type determines the time delay before a true ALARM is recognised.

4.7.2 OPERATING STEPS

Press the "SILENCE" key once.

- The "FLT", "ALM" and "ISO" LEDs of Zones 1 to 8 or 8+1 or 8+2 will be turned ON.
- The green "SEL" LED will be on the last zone selected or otherwise, zone 1.
- Amber "ISO" LEDs on ANCILLARY RELAY, MASTER ALARM and ALARM BELLS will be flashing.



Press the "SELECT" key until the green "SEL" LED indicator is at the required zone.

Press "SILENCE" key to rotate "FLT", "ALM" and "ISO" LEDs around zones 1 to 8, 8+1, 8+2 and back to 1.

** The input type or time delay is indicated by which of zones 1 to 8, 8+1, 8+2 have the "FLT", "ALM" and "ISO" LEDS on. Refer Section 2.7.2 for input types.

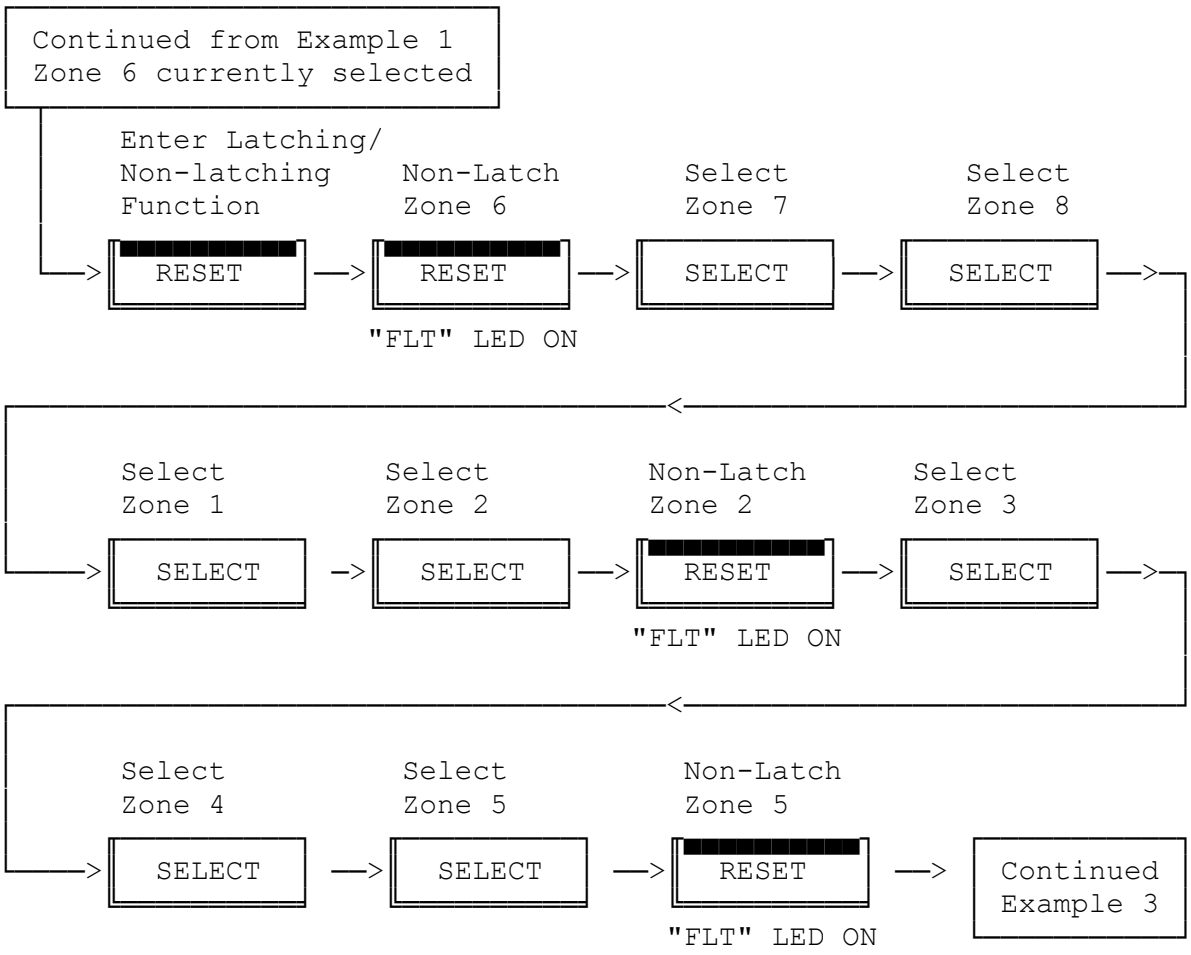
ZONE 1 = Default 2s transient
ZONE 2 = AVF/RAD
ZONE 3 = 1668 SAD
ZONE 4 = 1668 AVF/SAD
ZONE 5 = FSI 20 second
ZONE 6 = 2 secs alarm. No MCP
ZONE 7 = AVF/RAD. No MCP
ZONE 8 = Fast alarm with supervision
ZONE 8+1= Fast alarm, 15V loop power
ZONE 8+2=2 Secs alarm, S/C = normal

* Press the "SELECT" key to move to other zones or press "TEST", "RESET", or "ISOLATE" keys to perform other programming functions.

4.7.3 EXAMPLE 3

Continuing from example 2, perform the following keypad steps to program the zones as follows:

1) Zone 3 as AVF/RAD
2) Zone 4 as AS1688 AVF/SAD
3) Zone 5 as AS1668 SAD
4) Zone 6 as 20 sec flow switch.



4.8 ENABLING OR DISABLING ZONES

4.8.1 FUNCTION

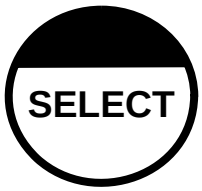
This function selects which zone inputs will be disabled or enabled. If a zone is disabled it will not require an End Of Line, nor will it be able to be selected. To be used a zone must be Enabled.

* DEFAULT: ALL ZONES ENABLED

4.8.2 OPERATING STEPS

Press the "ISOLATE" key once.

- The amber ANCILLARY RELAY "ISO" LED will either be ON or OFF. Any zones disabled will be indicated by the zone amber "ISO" LED being ON.
- The green "SEL" LED will be on the last zone selected or otherwise, zone 1.
- Amber "ISO" LEDs on MASTER ALARM and ALARM BELLS will be flashing.



Press the "SELECT" key until the green "SEL" LED indicator is at the required zone.

Press the "ISOLATE" key to toggle the enabled/disabled state.

- The amber "ISO" LED turned ON = ZONE DISABLED
- The amber "ISO" LED turned OFF = ZONE ENABLED.

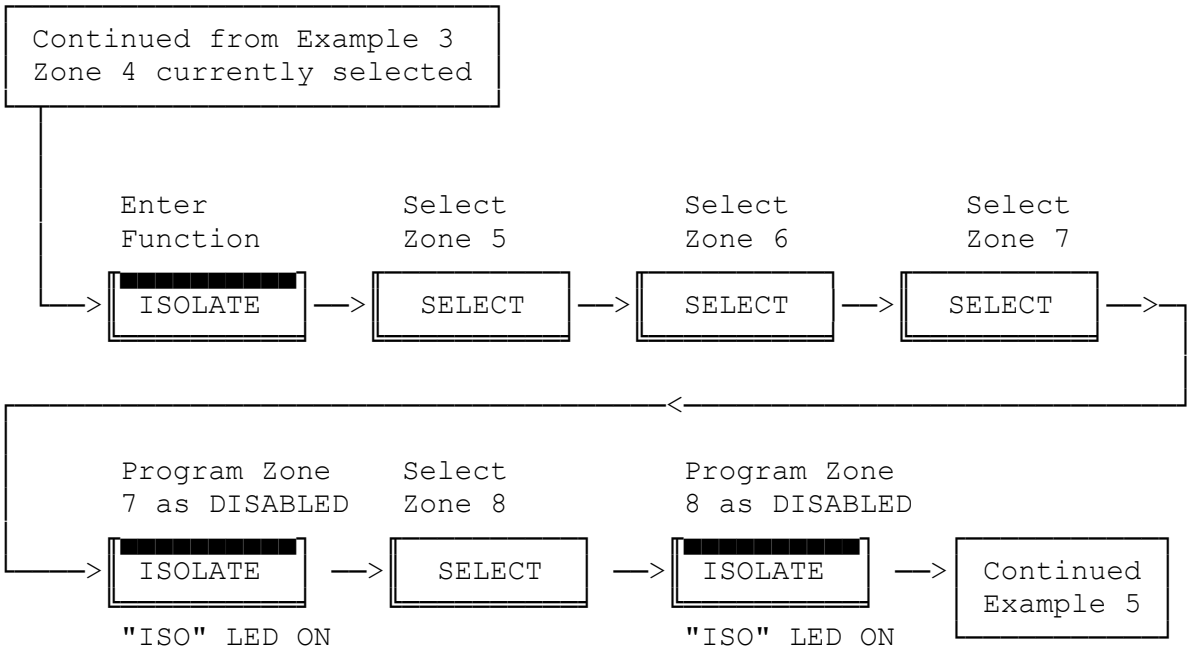
* Press "SELECT" key to move to other zones or press "TEST", "RESET", or "SILENCE" keys to perform other programming functions.

* * PLEASE NOTE * *

Upon exiting the "PROGRAMMING MODE" using the "SELECT" key (ie SAVE PARAMETERS), all zones toggled between disabled and enabled will automatically be ISOLATED.

4.8.3 EXAMPLE 4

Continuing from example 3, perform the following keypad steps to program zones 7 and 8 as disabled.



4.9 PROGRAMMING ANCILLARY RELAY SUPERVISION

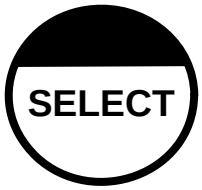
4.9.1 FUNCTION

This function enables or disables the "ANCILLARY RELAY" output supervision function.

When enabled, the "ANCILLARY" output must be wired for supervision otherwise a fault will be detected.

* DEFAULT: DISABLED

4.9.2 OPERATING STEPS



While in ZONE ENABLED/DISABLED programming mode, Press the "SELECT" key until the green ANCILLARY RELAY "SEL" LED is turned ON.

Press the "ISOLATE" key to toggle supervision state.

- Amber "ISO" LED turned ON = Supervision DISABLED
- Amber "ISO" LED turned OFF = Supervision ENABLED

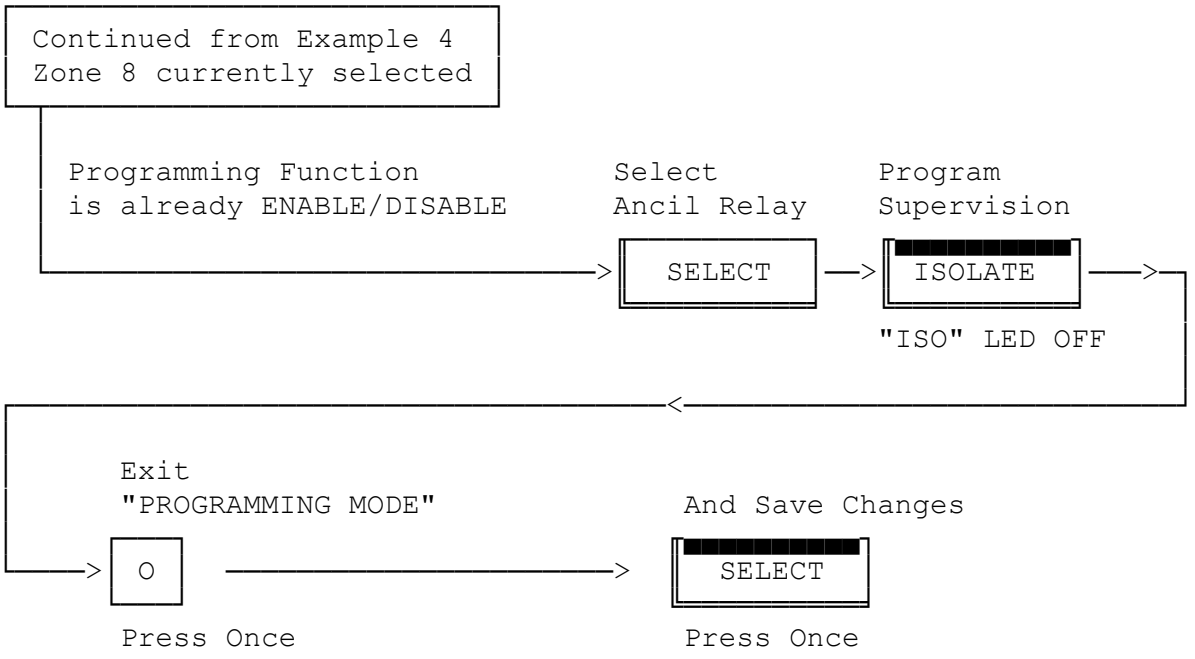
* Press the "SELECT" key to move to other zones or press "TEST", "RESET", or "SILENCE" keys to perform other programming functions.

* * PLEASE NOTE * *

Upon exiting the "PROGRAMMING MODE" using the "SELECT" key (ie SAVE PARAMETERS), the "ANCILLARY RELAY" will automatically be ISOLATED, if the supervision state had been toggled between disabled and enabled.

4.9.3 EXAMPLE 5

Continuing from example 4, perform the following keypad steps to program the Ancillary Relay output as supervised.



Note that on returning to normal operation after this example, Zones 1 - 6, Ancillary Relay, and Bells will be Isolated as they were all isolated as a result of the parameter reset function. The panel will also be signalling Fault to the brigade (unless isolated) as all enabled zones will be isolated.

After programming, the F08 FIP should be thoroughly checked to ensure that all programming was as desired and that all functions are operational.

4.10 PROGRAMMING ZONE AUXILIARY OUTPUT MODE

4.10.1 FUNCTION

This function selects whether the zone auxiliary outputs (open collector outputs) are isolatable or not.

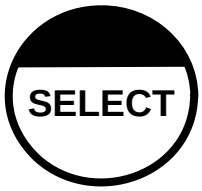
When a zone is in alarm and not isolated, the zone auxiliary output will always be on.

When a zone is in alarm and is also isolated, then the zone auxiliary output may be on or off depending on the programmed mode. While in the ZONE ENABLED/DISABLED programming mode the “Master Alarm” isolate LED indicates the mode. If the Master Alarm isolate LED is ON, then a zone auxiliary output is always off if the corresponding zone is isolated. (Zone auxiliary output is isolated by zone isolate).

If the Master Alarm Isolate LED is OFF then a zone auxiliary output will be ON when the zone is in alarm regardless of whether the zone is isolated or not.

DEFAULT : Zone auxiliary outputs are isolatable. (Master Alarm Isolate ON).

4.10.2 OPERATING STEPS



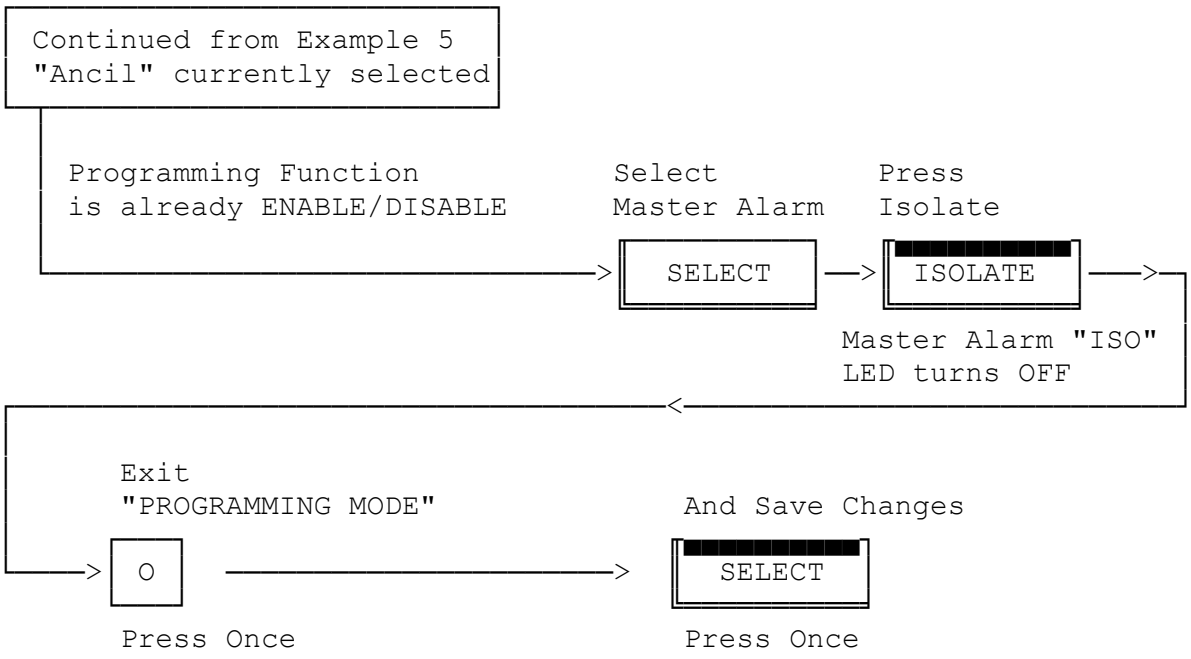
While in ZONE ENABLED/DISABLED programming mode, press the "SELECT" key until the green MASTER ALARM "SEL" LED is turned ON.

Press the "ISOLATE" key to toggle the mode.

- MASTER ALARM Amber “ISO” LED ON = Zone auxiliary outputs are isolatable.
- MASTER ALARM Amber “ISO” LED OFF = zone auxiliary outputs are not affected by zone isolate.

4.10.3 EXAMPLE 6

Continuing from Example 5, perform the following keypad steps to program the zone auxiliary output mode as outputs NOT isolatable.



Note that on returning to normal operation after this example, Zones 1 - 6, Ancillary Relay, and Bells will be Isolated as they were all isolated as a result of the parameter reset function. The panel will also be signalling Fault to the brigade (unless isolated) as all enabled zones will be isolated.

After programming, the F08 FIP should be thoroughly checked to ensure that all programming was as desired and that all functions are operational.

4.11 EXIT PROGRAMMING CHECKLIST

The following checks are required to ensure that the system is correctly programmed and configured.

1) All zones toggled between DISABLED and ENABLED are ISOLATED upon exit from the programming mode. They will need to be DE-ISOLATED before they are fully operational.

2) If the Ancillary Relay Supervision is toggled between DISABLED and ENABLED it will be isolated upon exit from programming mode. It will need to be DE-ISOLATED before use.

3) Check that there are no Faults or Alarms indicated.

4) Select each zone and perform a ZONE TEST.

   - Remember to manually ISOLATE or disconnect any zone "AUXILIARY OUTPUT" control during the test if necessary.

   - Remember NON-LATCHING zones will not keep the "FLT" LED ON after the "SILENCE" key is pressed.

   - Remember time delays are active during alarm test. Check that they correspond to what is required.

5) Select "ANCIL RELAY" and perform an output mapping test.

   - Mapped zones will be indicated by the zone "ALM" LED being ON.

   - Check operation of Relay Output.

6) Select "MASTER ALARM" and perform an output mapping test.

   - Mapped zones will be indicated by the zone "ALM" LED being ON.

7) Select "ALARM BELLS" and perform an output mapping test.

   - Mapped zones will be indicated by the zone "ALM" LED being ON.

   - Check operation of Bells Output.

8) If the Ancillary Relay Supervision is enabled, disconnect one of the output wires and check that a FAULT is registered.

9) Finally; perform a System Test.

4.12 TROUBLE SHOOTING IN PROGRAMMING MODE

TABLE 4.3
TROUBLE-SHOOTING IN PROGRAMMING MODE

CONDITION	REASON	ACTION
UNABLE TO ENTER PROGRAMMING MODE	A System Test is being performed	Wait until completed or press “RESET” to exit before pressing “PROGRAM”
	A Zone Test is being performed	
	A Battery Test is being performed	
	A Zone is in ALARM or FAULT	Silence and Isolate Zone before pressing “PROGRAM”
	Ancillary Relay is in FAULT	Isolate Ancillary Relay before pressing “PROGRAM”
	A key is depressed	Release all keys before pressing “PROGRAM”
	A key is shorting	Replace Display Board
ZONE(S) ARE ISOLATED	During Programming the zone has been toggled between disabled and enabled modes	Check NO FAULTS or ALARMS exist. If none, DE-ISOLATE zone
ZONE(S) ARE ISOLATED & IN ALARM	During Programming the zone has been toggled between disabled and enabled & ALARM EXISTS	Reset ZONE Check AZC
ZONE(S) ARE ISOLATED & IN FAULT	During Programming the zone has been toggled between disabled and enabled & FAULT EXISTS	Reset ZONE Check EOL & AZC Wiring Check AZC & Detectors
ANCIL RELAY ISOLATED	During Programming Super-vision has been toggled between disabled and enabled.	Check NO FAULT exists If none, DE-ISOLATE
ANCIL RELAY ISOLATED & IN FAULT	During Programming Super-vision has been toggled between disabled and enabled. - Supervision not correctly wired.	Check NO FAULT exists If none, DE-ISOLATE Reset ZONE
PARAMETERS NOT SAVED	DID NOT EXIT PROGRAMMING MODE CORRECTLY	Re-Program Press “SELECT” key when in exit programming mode (Sounder ON)
	ACCIDENTAL TRIPPED CIRCUIT BREAKER	Reset circuit breaker & check “MAINS ON” LED
	FAULTY EEPROM	Replace EEPROM U9
	SOFTWARE FAILURE	Replace uP/EPROM U10

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5. APPLICATION CONSIDERATIONS

5.1 SUB-PANEL WIRING

The F08 can be used as a sub-panel or it can be used as the master panel to a number of sub-panels. The following information details how the F08 can be used as a master panel to monitor other panels. How F08 is used as a sub-panel will depend on what the master panel is.

When an F08 is the master panel it may have multiple sub-panels connected to it but with the following restrictions:

i. Each sub-panel must be connected on a separate circuit with separate wiring to the master panel with the exception that co-located (i.e. physically adjacent) sub-panels may be connected on the same circuit.

ii. Each sub-panel may have a maximum of ten zones and a maximum of 250 devices. For co-located sub-panels connected on the same circuit the total number of zones on all the co-located sub-panels must not exceed 10 and the total number of devices must not exceed 250.

There are three ways in which the information from sub-panels can be indicated on the F08.

1) The sub-panel is shown as a SINGLE ZONE. An ALARM is shown as an alarm, and FAULT, ISOLATE, and STANDBY (if provided) are shown as fault.

   - This is used when the sub-panel "STANDBY" signal is not required to signal Fire to the Brigade.

2) The sub-panel is shown as a SINGLE ZONE. ALARM and STANDBY are shown as an ALARM, and FAULT and ISOLATE (if provided) are shown as FAULT. This can be used when the mapping and indication of Alarm and Standby from the sub-panel are the same.

3) The sub-panel is shown as TWO ZONES. One zone shows ALARM as alarm, and FAULT as fault. The other zone shows alarm when the sub-panel is in STANDBY, and FAULT when the sub-panel is isolated.

   - This can be used when ALARM and STANDBY signals from the sub-panel must be mapped or indicated separately.

In all cases, the AZC at the F08 should be programmed as circuit type 1, which provides open circuit fault monitoring and no AVF.

When using sub-panels with clean contact outputs a line resistance of up to 100 ohms can be supported with the standard 2k7 1% End of Line. For long or high resistance lines a resistance of up to 700 ohms is acceptable if a 2k2 5% End of Line resistor is used.

These resistances will guarantee open circuit fault recognition and also short circuit alarm in the 0-13V band.

5.1.1 FAULT ON STANDBY

Figure 5.1 shows that one AZC of the F08 can be used for monitoring a sub-panel. The ALARM, FAULT, ISOLATE, and STANDBY relays should be provided in the sub-panel. If they are not, then they can be left off the wiring.

NOTES:
1) STANDBY is optional.
2) STANDBY is normally energised.
3) SUB-PANEL TO MASTER FIP WIRING MUST BE FIRE RATED CABLE.

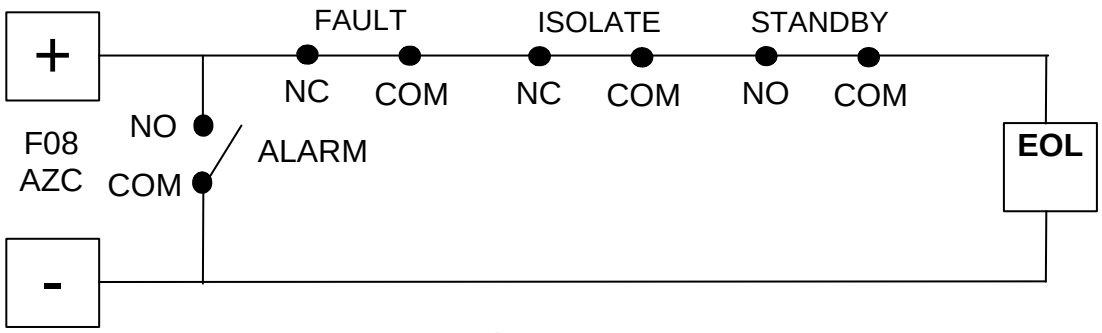

Figure 5.1
Fault on Standby Sub-Panel Circuit Wiring

5.1.2 ALARM ON STANDBY

Figure 5.2 shows how one AZC input of an F08 can be used to monitor a sub-panel with both alarm and standby from the sub-panel producing alarm at the master panel.

1. STANDBY is normally energised.
2. SUB-PANEL TO MASTER FIP MUST BE FIRE RATED CABLE.

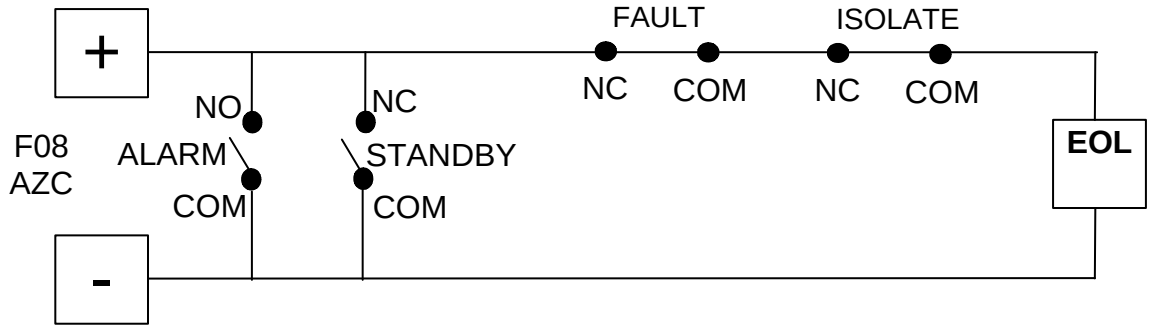

Figure 5.2
Alarm on Standby Sub-Panel Circuit Wiring

5.1.3 ALARM ON STANDBY - SEPARATE INDICATION TO ALARM

Figure 5.3 shows how two AZC inputs of an F08 can be used to monitor a sub-panel. AZC1 is used for the sub-panel's Alarm and Fault signals, AZC2 is used for the Standby and Isolate signals (if required). By the use of the two AZCs the mapping and/or indication of alarm and standby from the sub-panel can be different. The ALARM, FAULT, ISOLATE and STANDBY relays should be provided in the sub-panel.

NOTES:
1) STANDBY is normally energised.
2) The second AZC can map to the Brigade Relay and/or bells as required.
3) SUB-PANEL TO MASTER FIP WIRING MUST BE FIRE RATED CABLE.

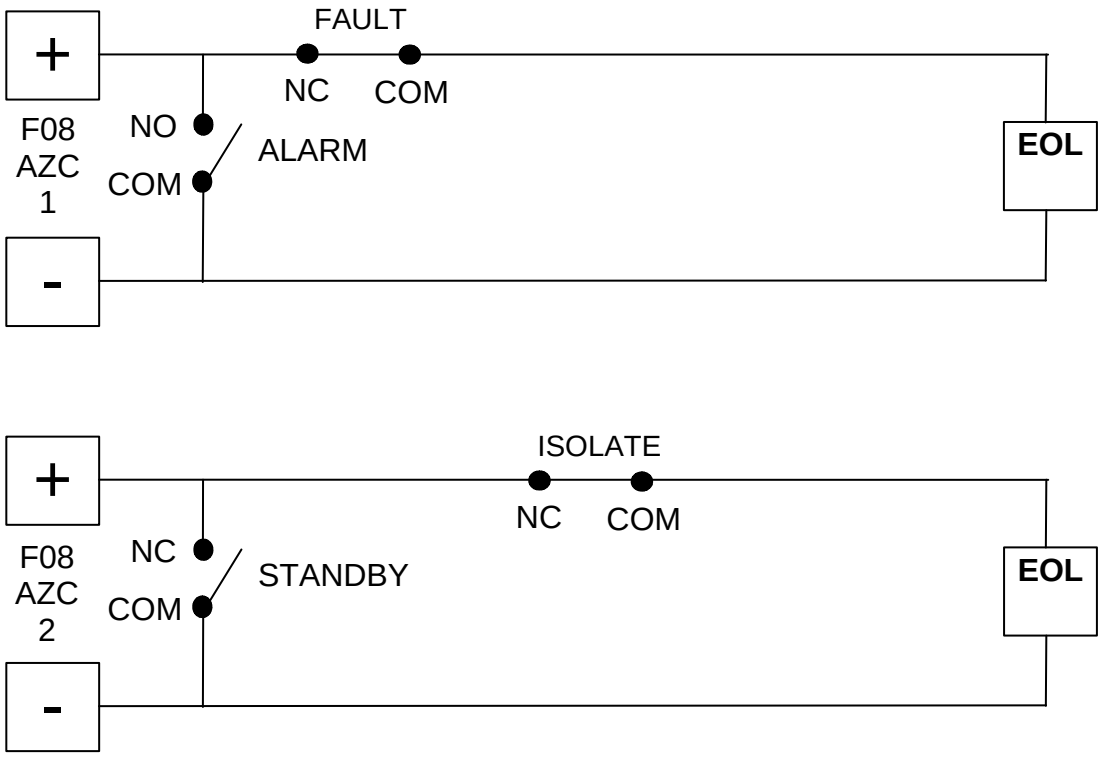

Figure 5.3
Dual Zone Sub-Panel Circuit Wiring

5.2 FIRE DETECTION IN HAZARDOUS AREAS

5.2.1 REFERENCES

AS2380 Electrical Equipment for Explosive Atmospheres - Explosion Protection Techniques.

AS 2381 Electrical Equipment for Explosive Atmospheres - Selection, Installation and Maintenance.

AS 2430 Classification of Hazardous Areas.

IEC79 Electrical Apparatus for Explosive Atmospheres.

SAA HB13 Electrical Equipment for Hazardous Areas (Handbook).

5.2.2 GENERAL

A hazardous areas is one which has a potentially explosive atmosphere due to combustible gases, liquids or dusts. In such an area there has to be a constraint to prevent an electrical fault from causing as explosion.

For fire detection in hazardous areas there are two main options:

1) Use approved IS (Intrinsically Safe) detectors and bases with IS isolators or Zener barriers and approved cabling.

2) Use approved detectors with explosion proof housings and compatible cabling. (E.g. Olsen V41B, (V42B), V44B, T54B). These are not discussed further in this section as the constraints are primarily mechanical.

5.2.3 INTRINSICALLY SAFE DETECTION

There are two types of device which may be inserted in a detection circuit between the FIP and the detectors to limit the electrical energy flow into the area and provide IS detection:

1) Galvanically (transformer) isolated repeaters (isolators).

2) Zener barriers (shunt barriers with fuses). These limit the circuit voltage relative to earth, and the circuit current.

   Although Zener barriers are cheaper than isolators, they require a special Intrinsic Safety Earth and other precautions, and are therefore <u>not recommended</u>.

5.2.4 ISOLATING REPEATERS

Two isolating repeaters are specified for use with F08:

Pepperl & Fuchs' KFDO-CS-Ex 1.51P and
Pepperl & Fuchs' KFDO-CS-Ex 2.51P

For these isolating repeaters the total capacitance and inductance of the detectors and cables on the IS circuit must be less than that specified in Table 5.2.1.

The gases and vapours in each gas group are listed in IEC 79-12.

GAS GROUP	MAX. CAPACITANCE	MAX. INDUCTANCE
IIA	1.04uF	33.6mH
IIB	0.39uF	12.6mH
IIC	0.13uF	4.2mH

Table 5.2.1
Maximum Capacitance & Inductance Per IS Circuit

For isolating repeaters, the cable core capacitance can be used, rather than core to earth which, for bunched conductors on metal trays, may be higher. (Note that for Zener barriers, the core to earth capacitance is relevant). The values used in this section for a typical TPS pair, or multicore cable (unshielded) are:

TPS C = 100nF/km (i.e. 100 pF/m), L = 0.8mH/km

Cable manufacturers may quote differing values for specific cables.

It is the responsibility of the System Engineer to check that the cable used has values less than or equal to the above values, and that the total capacitance and inductance for each circuit meet the requirements.

The values specified for the detectors are shown in Table 5.2.2.

DETECTOR	CAPACITANCE	INDUCTANCE	RESISTANCE (FW ONLY)
C29BEx/Z94C	1nF	1uH (0.001mH)	
R24BEx	3.3nF	1.5Mh	
MS302Ex	1.5nF		
FW68	84nF/km	0.62mH/km	100Ω/km
FW105	66nF/km	0.83mH/km	100Ω/km
FW180	57nF/km	0.89mH/km	100Ω/km

Table 5.2.2
Capacitance & Inductance Per IS Detector

ISOLATING REPEATERS (CONTINUED)

Notes:

1. The KFDO-CS-Ex 2.51P is two KFDO-CS-Ex 1.51P isolators in one package.

2. The resistance quoted in Table 5.2.2 for fire wire is per wire, thus the circuit resistance of the pair is twice that amount.

3. The FW68 and FW105 fire wires are not currently listed as IS.

4. The capacitance and inductance of the T54B and the T56B/Z55B are negligible.

5.2.5 CIRCUIT WIRING WITH ISOLATING REPEATERS

Figure 5.2.1 shows the wiring of the approved isolating repeaters with F08.

Note:

Do not connect 15V MCPs onto detection circuits that are connected to the F08 through an isolating repeater.

To use MCPs in an IS area, short circuiting MCPs (not 15V type) must be connected onto their own circuit through a separate isolating repeater channel to F08. The circuit input type must be programmed as type 1 (no AVF).

The number of detectors that can be accommodated on each IS circuit depends on the detector type and the cable length. Table 5.4.3 shows the details for the different detector types and different IS classifications.

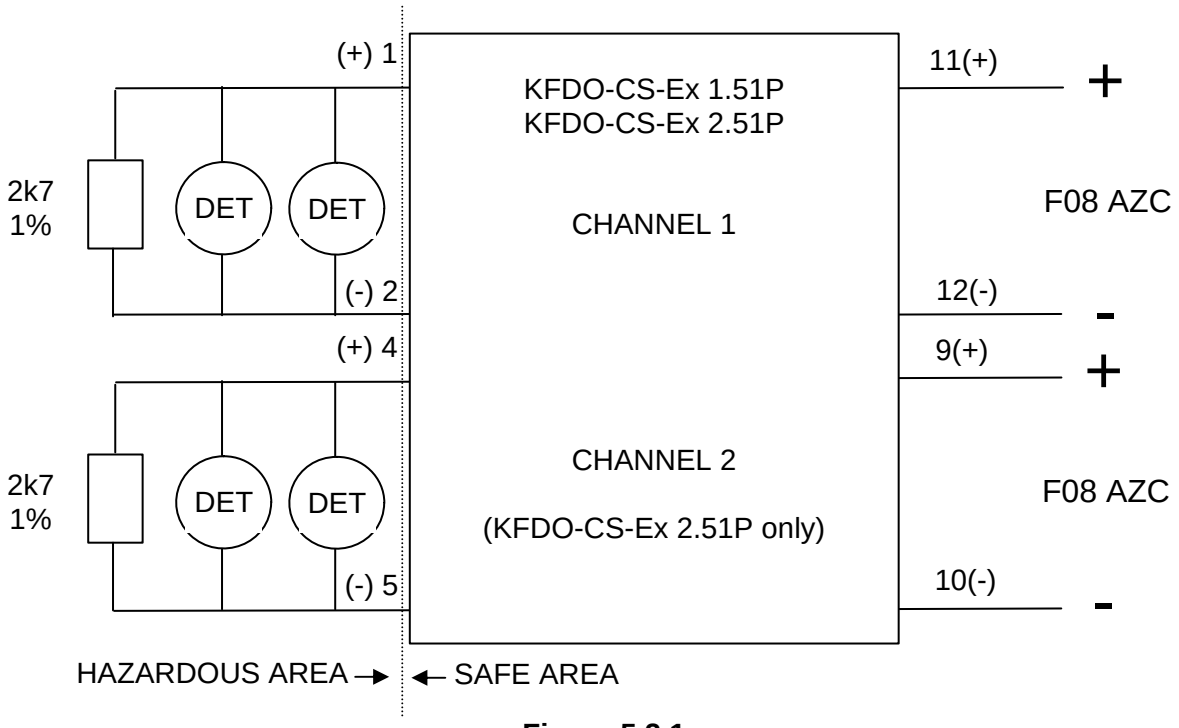

Figure 5.2.1
F08 Using Approved Isolating Repeaters

DETECTOR			GAS GROUP 11A OR 11B			GAS GROUP 11C		
				CCT LENGTH			CCT LENGTH	
TYPE	NBR	BASE	NBR	1.0mm^2	0.75mm^2	NBR	1.0mm^2	0.75mm^2
FLAME	MS302Ex	M300	40(m)	1.5km(R) (50Ω)	1.1km(R) (50Ω)	40(m)	0.7km (C) (70nF)	0.7km (C) (70nF)
						30	0.85km (C) (85nF)	0.85km (C) (85nF)
						20	1km (C) (100nF)	1km (C) (100nF)
						10	1.15km (C) (115nF)	1.1km (R) (50Ω)
						1	1.28km (C) (128nF)	1.1km (R) (50Ω)
SMOKE	C29BEx	Z94C	40(m)	1.5km (R) (50Ω)	1.1km (R) (50Ω)	40(m)	0.9km (C) (90nF)	0.9KM (C) (90nF)
						30	1km (C) (100nF)	1km (C) (100nF)
						20	1.1km (C) (110nF)	1.1km (C) (110nF)
						10	1.2km (C) (120nF)	1.1km (R) (50Ω)
						1	1.29km (C) (129nF)	1.1km (R) (50Ω)
FLAME	R24BEx	-	5(m)	1.5km (R) (50Ω)	1.1km (R) (50Ω)	2(m)	1.13km (C) (113nF)	1.1km (R) (50Ω)
						1	1.2km (C) (120nF)	1.1km (R) (50Ω)
HEAT	FW105	-	-	NOTE 2 & 3 (50Ω)	NOTE 2 & 3 (50Ω)	-	1.3km TOT (130nF)	1.1km (R) (50Ω)
HEAT	T54B	-	40(m)	1.5km (R) (50Ω)	1.1km (R) (50Ω)	40(m)	1.3km (C) (130nF)	1.1km (R) (50Ω)
HEAT	T56B	Z500N	40(m)	1.5km (R) (50Ω)	1.1km (R) (50Ω)	40(m)	1.3km (C) (130nF)	1.1km (R) (50Ω)

Table 5.2.3
Maximum Detector Quantity & Cable Length for KFDO-CS-Ex 1.51P/2.51P

1. If the circuit length is limited due to capacitance or inductance, (e.g. 1.3km (C)), then the difference in cable length to that limited by resistance can be used on the non-hazardous side. I.e. circuit length is from the isolating repeater to the EOL when the length is limited due to cable capacitance/inductance, or from the F08's terminal through the isolating repeater to the EOL when the limit to due to resistance.

2. Cable resistance shown is for the complete circuit, i.e. both cables in the pair. The value of 34Ω per km (return) is used for 1mm^2.

3. The maximum resistances shown for the fire wire circuits must include both cable and fire wire (see Table 5.2.2 and associated Note 2).

4. The letter in ( ) after the cable length, and the value in ( ) under the cable length specify which parameter out of capacitance (C), inductance (L), and resistance (R) provides the limitation, and what the limiting value is.

5. The (m) after a detector quantity indicates the maximum quantity allowed per circuit.

5.2.6 PROGRAMMING & LIMITATIONS

When using the F08 with IS Isolators the 13-17V region must be programmed as detector alarm, i.e. Type 1 (non-AVF) or Type 4 (AVF). With circuit type 4 the zone must be programmed as latching to cancel any out-of-alarm delay. This allows the higher alarm voltage of the detector and isolator to be used.

Note: Do not use Type 2 (AVF) mode with IS barriers as the alarm voltage may not be interpreted correctly.

5.2.7 ZAU401

The F08 can be connected to other IS detectors by using the ZAU401 module. This connects onto the F08's AZC input and provides its own interface circuitry to the detectors.

Refer to the ZAU401 documentation for details on which detectors it can be used with.

The IS section of the design must be done using the ZAU401 data.

One ZAU401 can connect onto each F08 AZC. The circuit can be programmed as circuit type 1 or 2.

5.3 PREVENTION OF NON “FIRE” ALARMS

All fire detection systems rely on their ability to identify atmospheric or environmental changes brought about by the presence of fire. They employ various types of sensors to monitor specific conditions. These devices signal a warning when an abnormal condition exits, indicating either the actual presence of a fire or the immediate likehood of one.

Detectors monitor a number of physical phenomenon, which include smoke, heat, flame, pressure, or the presence of combustion products such as gases to detect a fire. However, some or all of these conditions may appear in different ways when there is no fire present and trigger an un-wanted alarm. For example:

(a) HEAT SOURCES; The sudden increase in local temperature when a furnace door is opened can trigger heat sensors.

(b) DRAUGHTS; Wind-induced surges of steam or dust can cause smoke detectors to generate an alarm signal.

(c) ENVIRONMENT CHANGES; Changes to wall partions, Air-Duct position or air velocity can cause detectors to be forced into continuous alarm.

(d) UNUSUAL ACTIVITIES; Portable welding units can activate flame detectors, while spray-painting 'drift' can trigger smoke detectors.

(e) RADIO INTERFERENCE; In extreme situations some electronic detectors may suffer from electromagnetic interference from radio transmitters or other electrical noise generating devices.

It is therefore highly recommended that the service company be aware of all site conditions and be notified of any changes to the occupancy or physical aspects of the building or area being protected.

5.4 TROUBLE SHOOTING

In addition to the trouble-shooting guide contained in the F08 Operator Manual, Table 5.4.1 gives a quick reference to the typical problems, reasons and possible corrective action for faults experienced with the F08 FIP.

TABLE 5.4.1
TROUBLE-SHOOTING

CONDITION	REASON	ACTION
"MAINS ON" LED - OFF - NO FAULT SOUNDER	MAINS SWITCH OFF	Turn Mains Switch ON
	MAINS NOT WIRED	Connect Mains
	NOT CONNECTED TO MAINS DISTRIBUTION BOARD	Connect
	ACCIDENTAL TRIPPED CIRCUIT BREAKER	Reset Circuit Breaker & check "MAINS ON" LED
	LOOSE DISPLAY FRC CONNECTOR TO J1	Correctly terminate FRC to J1
	AC FUSE F4 BLOWN	Replace Fuse - 5.0A
	LOOSE WHITE WIRE TO AC IN CONNECTOR J4	Correctly terminate
	LOOSE MAINS WIRING TO TRANSFORMER	Correctly terminate
	FAULTY MAINS SWITCH	Check Mains Switch & replace if necessary
	FAULTY TRANSFORMER	Check Transformer & replace if necessary
	FAULTY LED ON DISPLAY	Replace Display Board
	FAULTY MAIN BOARD	Replace Main Board
BATT/CHGR "FLT" LED - STEADY	CHARGER VOLTAGE HIGH - Damage to battery possible	Adjust Battery/Charger monitoring Refer Technical Manual
	CHARGER VOLTAGE LOW - Battery will not charge correctly	
BATT/CHGR "FLT" LED - FLASHING	BATTERY DISCONNECTED	Re-connect Battery
	BATTERY CHARGE LOW	Check again in 24 hours
	BATTERY MALFUNCTION	Replace Battery
	MONITORING INCORRECT	Adjust Battery/Charger monitoring Refer Technical Manual
ANCIL RELAY "FLT" LED STEADY	Ancillary Output Circuit is open circuited.	Check Load device Check Terminal wiring
	Ancillary Output Circuit is short circuited	Wired for Supervision? Check external wiring
	SUPERVISION FAULTY	Replace Main Board

TABLE 5.4.1
TROUBLE-SHOOTING (CONTINUED)

ZONE IN CONTINUOUS FAULT OR ALARM - Cannot clear by zone reset	WIRING FAULT	Check wiring
	EOL FAULT	Check if resistor fitted Fitted at last detector? Only one EOL resistor fitted?
	DETECTOR FAULT	Correctly wired? Faulty detector?
	Main Board Faulty	Fit EOL resistor at circuit terminals on main board and remove circuit wires. If the fault does not clear, the main board may need replacing.

APPENDIX A1

COMPATIBLE BATTERIES

SONNENSCHIEN RANGE						
Type	Voltage	AHr	Approved	Width	Length	Height
A212/5.7S	12	5.7	NO	152	66	99
A212/9.5S	12	9.5	NO	152	98	99
A312/5.7S	12	5.7	YES	152	66	99
A312/9.5S	12	9.5	NO	152	98	99

POWER-SONIC RANGE						
Type	Voltage	AHr	Approved	Width	Length	Height
PS1265	12	6.5	YES	151	65	98
PS12100	12	10	YES	151	102	98

NOTES:

(a) Dimensions are in millimetres.

(b) Height is Height over terminal

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APPENDIX A2

COMPATIBLE ACTUATING DEVICES

OLSEN RANGE			MAX NO. OF DETECTORS PER ZONE
TYPE	DESCRIPTION	Iq uA	
C23BEx *	Ionisation Smoke Detector (IS Version)	100	40
C24B	Ionisation Smoke Detector	20	40
C29B	Ionisation Smoke Detector	45	40
C29BEx	Ionisation Smoke Detector (IS Version)	45	40
P24B	Photoelectric Smoke Detector	100	40
P29B	Photoelectric Smoke Detector	120	33
P76B	Photoelectric Smoke Detector Non-Latching	200	20
P136	Duct Sampling Unit	500	8
R23B &	InfraRed Flame Detector	130	30
R24B	Dual Spectrum Infrared Flame Detector	250	5
R24BEx	Dual Spectrum Infrared Flame Detector (IS)	250	5
T56B	Heat Detector Types A, B, C, D	0	40
DLO1191A #	Beam Detector	2800	1

* & See Notes. With the Z54 Mk2, Z56, Z500, Z72 and Z23 bases as appropriate.

TYCO RANGE			MAX. NUMBER WITH EOL
TYPE	DESCRIPTION	Iq uA	
614P	Photoelectric Smoke Detector	104	38
614I	Ionisation Smoke Detector	67	40
614CH	Carbon Monoxide & Heat Detector	80	40
614TA	Heat Detector Type A	100	40
614TB	Heat Detector Type B	100	40
614TC	Heat Detector Type C	100	40
614TD	Heat Detector Type D	100	40
MD614	Heat Detector	60	40
MF614	Ionisation Smoke Detector	100	40
MR614	Photoelectric Smoke Detector	100	40
MR614T	High Performance Optical Smoke Detector	100	40
MU614	Carbon Monoxide Detector	50	40
T614A or T614A Mk2	Heat Detector Type A	100	40
T614B or T614B Mk2	Heat Detector Type B	100	40
T614C or T614C Mk2	Heat Detector Type C	100	40
T614D or T614D Mk2	Heat Detector Type D	100	40
S121	Infra-red Flame Detector	100	40
MS302Ex	Infra-red Flame Detector	100	40

With M614 or 5B base as appropriate.

DETECTORS CERTIFIED WITH THE F08 FOR HAZARDOUS AREA APPLICATIONS		Iq uA	MAX NO. OF DETECTORS PER ZONE
TYPE	DESCRIPTION		
C29BEx #	Ionisation Smoke Detector Z94C Base	45	40
R24BEx #	Dual Spectrum InfraRed Flame Detector	250	5
T54B	Probe Type E Heat Detector	0	40
T56B #	Heat Detector Types A, B, C, D Z500N Base	0	40
MS302Ex #	IS InfraRed Flame Detector	100	40
-	Short Circuit Device	-	40

With Pepperl & Fuchs KFDO-CS-Ex 1.51P (or 2.51P) Isolating Repeater.
F08 Input type must be programmed as Type 1 or Type 4.

OLSEN RANGE		Iq uA	MAX NUMBER WITH EOL
TYPE	DESCRIPTION		
B111B	Beam Type Smoke Detector	0	40
T54B	Probe Type E Heat Detector	0	40
V41B	Ultraviolet Flame Detector	0	40
V42B	Ultraviolet Flame Detector	0	40
FW81B	Heat Detector Cable	0	1000m

SIMPLEX RANGE		Iq uA	MAX NUMBER WITH EOL
TYPE	DESCRIPTION		
4098-9601EA	Photoelectric Smoke Detector	100	40
4098-9603EA	Ionisation Smoke Detector	100	40
4098-9618EA	Heat Detector Type A	100	40
4098-9619EA	Heat Detector Type B	100	40
4098-9621EA	Heat Detector Type D	100	40
All with 4098-9788EA Base			

SYSTEM SENSOR RANGE		Iq uA	MAX NUMBER WITH EOL
TYPE	DESCRIPTION		
885WP-B ^ %	Weatherproof Heat Detector Type B	50	40

NOTES

1) The maximum number of detectors per AZF/AZC allowed by code is 40.

2) Not all detectors listed are approved to the appropriate Australian Standard.

3) For use in HAZARDOUS AREAS, the listed Intrinsically Safe (IS) detectors must be used in conjunction with the listed isolating repeaters, or flame proof detectors be used with flame proof wiring.

4) Detectors indicated by a **"*"** are not current models and should not be used for new installations.

NOTES (CONTINUED)

5) Early version of detectors indicated by a **"&"** used an incandescent lamp. These may not light with full brightness when in alarm. Later versions have LEDs.

6) Allowable line resistance with detectors is 30 Ohms. Hard Contact only circuits may have a line resistance up to 760 Ohms. If a 15V zener is included for operation in the 13-17V band, a maximum of 30Ω line resistance applies.

7) For IS applications the maximum number of detectors per circuit may be further reduced due to the cable length required. Refer to Section 5.2.

8) For IS applications with the listed isolating repeaters there are special programming requirements for the F08. Refer to Section 5.2.

9) The maximum detector quiescent current allowed is 4 mA.

10) Detectors indicated by a **"^"** have not been SSL/CSIRO accessed for compatibility.

11) Detectors indicated by a **"%"** cannot have their remote indicator outputs wired in common with Tyco 614 series or the Minerva M614 series (and most other Tyco/ Olsen detectors).

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APPENDIX A3

DRAWINGS

A3/696-036	F08 FIP Brigade Wiring Diagram for Randata Deltec
A3/696-037	F08 FIP Brigade Wiring Diagram for Minimux Deltec
A3/696-038	F08 FIP Brigade Wiring Diagram for MFB Alarm Interface Unit.
A3/696-039	F08 FIP Brigade Wiring Diagram for Torrens Transponder
A4/1899-10	Zone Naming Label.

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