FIRE FIGHTER'S GUIDE - FFCIF TYPE 3

1. VIEW NEXT ALARM

Press "NEXT" key once -

- The LCD will display the next alarm.

2. ACKNOWLEDGE DISPLAYED ALARM

Press "ACK" key once.

- LCD will display "ACKD" for the displayed alarm.
- The flashing alarm LED for the zone will go steady.
- If all alarms are acknowledged, the ALARM LED will go steady.

3. RESET ALL ACKNOWLEDGED ALARMS

Press "RESET" key once.

- LCD will display "Resetting acknowledged alarms".
- Alarm LEDs for acknowledged alarms will turn off.
- If all alarms are reset, the LCD will display "No more events in alarm list", otherwise the oldest unacknowledged alarm will be displayed.

4. ISOLATE ALL ACKNOWLEDGED ALARMS

Press "ISOLATE" key once.

- LCD will display "Isolating acknowledged alarms".
- Isolate LEDs for acknowledged alarms will turn on.
- If all alarms are isolated, the LCD will display "No more events in alarm list", otherwise the oldest unacknowledged alarm will be displayed.

5. ISOLATE/DE-ISOLATE BELLS

Press "BELLS ISO" key once.

- If the "Bells Isolate" LED is OFF
- The "Bells Isolate" LED will turn ON steady.
- The bells will turn OFF if they are ON.
- If the "Bells Isolate" LED is ON
- The "Bells Isolate" LED will turn OFF.
- If any un-isolated alarms exist, the bells will ring.

6. BRIGADE TEST

Press and hold the "BRIG TEST" key for at least 2 seconds. If enabled:

- The FIP will signal Alarm to the brigade.
- Any ancillary functions controlled by MAF ALARM will turn ON, unless they are isolated.

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F4000
LCD OPERATOR'S MANUAL

F4000 PRODUCT MANUAL
VOLUME 7

Document Number: LT0117

Issue 2.38; 19 April 2002

- APPROVALS -

AUSTRALIAN STANDARDS AS1603.4 1987 (Incl. Amdt 1 & 2):
- SSL Certificate of Compliance Number 131
- SSL Register of Accredited Products Number 398 (Fire Protection Equipment)
AUSTRALIAN STANDARDS AS4050(INT) 1992
NEW ZEALAND STANDARDS NZS4512-1981 (INCL AMDT 1 & 2)
AS/NZS 3548 1995 CLASS A

The F4000 Fire Indicator Panel is manufactured for:

Tyco Services Fire & Safety
25 Cleeland Road
Oakleigh South
VIC 3167
AUSTRALIA

Tel : +61-3-9543 2220
Fax : +61-3-9543 2155

INSTALLATION DETAILS

For your reference please complete the following information on the F4000 LCD Fire Indicator Panel supplied.

F4000 FIP SUPPLIED BY	
F4000 FIP INSTALLATION LOCATION	
CONTRACT/JOB NUMBER	
F4000 SERIAL NUMBER	
F4000 SYSTEM AS INSTALLED DRAWING NUMBER	Issue:
F4000 SYSTEM PARAMETERS DRAWING NUMBER	Issue:
Date Panel Manufactured	
Date Panel Installed	
Date Panel Commissioned	
Maintenance Company	
Telephone	B.H. A.H.
Service Contact	
Site Contact or Registered User (include title)	
Company / Address	
Telephone	B.H.

EMC COMPLIANCE

WARNING: This product is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

TABLE OF CONTENTS

TYCO SERVICES FIRE & SAFETY
END USER LIABILITY DISCLAIMER

The F4000 Fire Indicator Panel provides a configuration programming facility, which may be accessed via a programming terminal using a password.

Because this programming facility allows the user to define in detail the operation of the F4000 System which is being customised, changes may be made by the user that prevent this installation from meeting statutory requirements.

TYCO SERVICES FIRE & SAFETY therefore cannot accept any responsibility as to the suitability of the functions generated by the user using this programming facility.

AMENDMENTS

ISSUE	DATE	COMMENTS	ECN
1	10/09/93	Original for Software Version 2.0	
1.1	03/11/93	Minor Text Changes/Updates	
2.2	15/12/95	Updated for Software Version V2.2X and V2.2XN. Includes: Support for "130 Series" Devices. New Analogue Sensitivity Adjustment. New Fault Present and Database. Change/CRC Display.	
2.22	25/07/96	Updated for V2.22/2.22N software, updated pages i, vi, 4-3, 4-7, 5-8, 6-5, 6-11, 6-12.	2468
2.23	24/10/96	Updated for V2.23/V2.23N, pages i, iv, vi, 4-5, 6-11, 6-12 and Chapter 8.	2510
2.23A	10/04/97	Bell Test Key Sequence corrected (was Sys Test 2).	2602
2.30	14/10/97	Updated for V2.30/V2.30N Sections 0, 1, 2.1.7, 2.1.9, 2.1.11, 2.3.1, 2.3.5, 2.4, 3.1, 3.2.6, 5.1.2, 5.7.2, 6.6.3, 6.9.3, 7.6.2, 7.6.3, 8.3.1, 8.3.4, 8.4.2, Appendix A, Table III base information, pg A-5 6)	2621
2.31	27/04/98	Updated for V2.31/V2.31N. Sections 2.4, 3.3, 4.3.5, 6.1.3, 6.4, 6.6.3, 9.3	
2.35	01/02/00	Updated for V2.35/V2.35N, converted to Word 97, Sections 1.1, 1.3, 1.4, 2.3.1, 2.3.8, 4.6, 5.1.2, 5.2.1, 5.6.1, 5.7.2, 5.9.2, 6.6.3, 6.4, 6.9, 8.1.2, 8.1.3, 8.1.4, 8.1.5, 8.2.3. Added 8.1.6. Updated Fire Fighter's Type 3 Guide.	2983
2.35A	02/05/00	Revised to include networking features from LT0150.	3074
2.37	19/04/01	Brand changed to Tyco. Revised Section 5.2.1 and added P133A, Z134A details to Appendix A.	3169
2.38	19/04/02	Revised for V2.38 for Dirty Alert, Charger Ignore time after NZ 1 hour battery test, and Charger LED cadence.	3288

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1 INTRODUCTION

1.1 SCOPE

The F4000 Fire Alarm System is very powerful and packed with many features. In spite of this, it is very user friendly and intuitive to use.

The LCD front panel provides a simple, menu driven interface to allow control of the FIP and, therefore, reference to this manual is rarely required for the experienced fire industry person.

This manual has been written to cover every aspect of the panel's operation and would normally be consulted for reference purposes only, or when there are abnormal situations.

NOTE: This manual describes operation of F4000 FIPs fitted with Version V2.35N or later software and an LCD keypad. Network operation is covered in this manual (it previously was a supplementary manual) even though networking may not be enabled in all panels. Operators of systems without an LCD should use LT0057, as there are many differences in operation. Operators of systems with V2.0X software should use revision 1.1 of this manual, and systems with V2.2(N) software should use revision 2.23A of this manual.

For the less experienced user, start by reading the chapter on "System Description".

The building owner's representative responsible for the fire alarm system should be fully aware of what is contained in this manual.

The Manual is structured into the following chapters:

Chapter 1: **Introduction**: An introduction to this manual, other F4000 Product manuals and the standards relating to fire alarms.

Chapter 2: **System Description**; A description of the F4000 system features and functions, and how networking alters a panel's operation.

Chapter 3: **Specifications**; A summary of F4000 system specifications.

Chapter 4: **Interpreting the Display;** A description of display indications.

Chapter 5: **Operating Instructions - Brigade Functions;** A detailed description of the operation and function of keys for FIRE FIGHTER'S USE provided on the F4000 LCD ("ACK", "RESET", "ISOLATE" and "BRIG TEST").

Chapter 6: **Operating Instructions - System Functions;** A detailed description of the operation and function of keys provided on the F4000 LCD FIP for system testing and information recall. For example, System Test, Lamp (LED) Test, System Fault Reset, Bell Test, Bell Isolate, and History recalls.

Chapter 7: **Operating Instructions - Zone Functions;** A detailed description of the operation and function of keys provided on the F4000 LCD FIP for zone tests and functions.

Chapter 8: **Operating Instructions - Point Functions;** A detailed description of the operation and function of keys provided on the F4000 LCD FIP for point recalls, and sensitivity adjustments.

SCOPE (CONTINUED)

Chapter 9: **Placing Into Operation;** A description of how to place a correctly aligned and adjusted system into operation. Also included is a System Commissioning Checklist.

Chapter 10: **Maintenance and Trouble-Shooting;** A guide on system maintenance procedures and trouble-shooting.

Appendix A: **Responder Compatible Actuating Devices;** A list of compatible actuating devices and detectors for the F4000 FIP.

Appendix B: **Compatible Batteries;** A list of compatible batteries.

Appendix C: **FFCIF Type 2 Fire Fighters Guide**; For use when the FIP is programmed for FFCIF Type 2 operation.

1.2 ATTACHMENTS

A FIRE FIGHTER'S GUIDE is fixed inside the front cover for quick reference in emergencies.

If the F4000 FFCIF is configured for Type 2 operation, i.e. global acknowledgement, reset and isolation of zones in alarm, refer to Appendix C for instructions on ensuring that the correct Fire Fighters Guide is used.

Your installation company should install the following documents inside the panel:

(a) An "AS INSTALLED" fire detection system diagram and/or summary, describing the installed layout of your F4000 System.

(b) Other "AS INSTALLED" information, such as System configuration parameters.

(c) A Maintenance Log-Book.

1.3 ASSOCIATED DOCUMENTATION

1.3.1 PRODUCT RELATED

The following F4000 product manuals are available:

Volume 1, F4000 Operator's Manual, provides a complete guide to the operation and maintenance of the F4000 FIP and RZDU panels, with Version 1.X software, according to Australian Standards AS1603 Part 4 and New Zealand Standard NZS4512. This manual is provided as standard with non-LCD F4000 FIP panels, and RZDUs (LT0057).

Volume 2, F4000 Technical Manual, provides complete technical details on the F4000 system and Hardware/Software components, according to Australian Standards AS1603 Part 4, for servicing purposes (LT0069).

Volume 3, F4000 Engineering Manual, provides complete design details for correctly engineering the F4000 system to meet customer and standard specifications (LT0071).

Volume 4, F4000 Installation Manual, provides complete details for correctly installing and placing into operation the F4000 system (LT0070).

Volume 5, F4000 Programming Manual, provides details for correctly programming the F4000 system to meet the system engineering specifications (LT0072).

Volume 6, F4000 AAR Technical & Engineering Manuals, Volume 6-1 provides Technical details on the AAR and Addressable Devices, and Volume 6-2 provides Engineering Design information for correctly engineering the AAR loop (LT0095/LT0096).

Volume 7, F4000 LCD Operator's Manual, provides a complete guide to the operation and maintenance of F4000 LCD FIP panels with Version 2.X software, according to Australian Standards AS1603 Part 4, AS4050(INT), and New Zealand Standard NZS4512. This manual is provided as standard with F4000 LCD FIP panels (LT0117/LT0118).

From Issue 2.35A onwards LT0117 includes networked operation, previously covered in a separate manual LT0150.

Volume 8, F4000 NZ Fire Indicator Panel Technical Manual, provides additional installation and technical information regarding the application of F4000 Analogue Addressable Fire Alarm Systems in
New Zealand (LT0126).

Volume 9, F4000 MPR Technical & Engineering Manuals, Volume 9.1 provides technical details on the MPR and Addressable devices, and Volume 9-2 provides Engineering Design information for correctly engineering the MPR loop (LT0139/LT0140).

1.3.2 STANDARDS RELATED

This manual makes reference to the following Australian Standards:

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

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

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

AS4050(INT) Fire Detection and fire alarm systems - Fire Fighter's control and indicating facilities.

This manual makes reference to the following New Zealand Standard:

NZS4512 Automatic Fire Alarm Systems in Buildings.

1.4 GLOSSARY OF TERMINOLOGY

The following abbreviations and terminology are used in this manual:

AAR	Analogue Addressable Responder
AC	Alternating Current
ACZ	Ancillary Control Zone
ADR	Advanced Detector Responder unit
ADU	Addressable Device Unit
"ALM"	Display abbreviation for ALARM
ARR	Advanced Relay (and Detector) Responder (ADR + RRM)
AS	Ancillary Supervision
AVF	Alarm Verification, or check alarm.
AZC	Alarm Zone Circuit, commonly referred to as "Detection Zone"
AZF	Alarm Zone Facility, commonly referred to as "GROUP"
CIE	Control and Indicating Equipment
DC	Direct Current
DIRTY ALERT	Signalled when Detector contamination becomes excessive
EEPROM	Electrically Erasable Programmable Read Only Memory
EOL	End Of Line device
EPROM	(U.V.) Erasable PROM
F	Flashing LED indicator
FFCIF	Fire Fighter's Control & Indication Facilities, AS4050 (INT)
FFCIF MODE	The LCD is displaying the alarms list. Limited key entry as per AS1603.4
FIP	Fire Indicator Panel
"FLT"	Display abbreviation for FAULT
FRC	Flat Ribbon Cable
FSZ	Flowswitch Zone
GLOBAL	A function that may affect more than one zone.
IOR	Input Output Responder
"ISO"	Display abbreviation for ISOLATED
LCD	Liquid Crystal Display
LED	Light Emitting diode (Visual Indicator)
LOGICAL RESPONDER	A responder that communicates with the FIP. A physical responder may function as a number of logical responders.
MAF	Master Alarm Facility
MAF ZONE	Any zone, Alarm or Ancillary Control, that is configured to signal the brigade in the event of an alarm or fault
MAPPING	Programming AZCs to turn on certain outputs
MCP	Manual Call Point (break glass switch)
MAINTENANCE ALERT	Equivalent to Dirty Alert
MPR	Multi-Protocol Responder
O/C	Open Circuit
PCB	Printed Circuit Board
PHYSICAL RESPONDER	A single physical responder pcb connected to the loop, which may internally support a number of logical responders.
PROM	Programmable Read-Only Memory
PSU	Power Supply Unit
RAM	Random Access Memory
RF	Rapid Flashing LED indicator
RRM	Responder Relay Module
RZDU	Remote Zone Display Unit
S/C	Short Circuit
SF	Slow Flashing LED indicator
VB	Abbreviation for Battery Backed Voltage.
VNB	Abbreviation for Non Battery Backed Voltage.
ZONE	Fire searchable area of building

2 SYSTEM DESCRIPTION

2.1 SYSTEM COMPONENTS

2.1.1 OVERVIEW

The F4000 is a fire detection system designed to cover a wide range of applications. It performs the functions of the Control and Indicating Equipment (CIE), as specified by the Australian Standards AS1603.4 for Automatic Fire Detection and Alarm Systems and AS4050(INT) for Fire Fighters Control and Indication Facilities, and the New Zealand Standard NZS4512 for Automatic Fire Alarm Systems in Buildings.

Figure 2.1 shows a block diagram of the F4000 System.

The F4000 Fire Alarm System consists of the following main components:

(a) A Fire Indicator Panel (FIP) containing an LCD Display and

(b) A number of "Responders" located around a Communications Loop. These Responders, selected from a range of different types, provide the interface between the various detection devices and the F4000 system.

(c) A number of optional Remote Zone Display Units (RZDUs) which mimic the FIP zone displays at locations remote from the FIP.

2.1.2 F4000 FIRE INDICATOR PANEL (FIP)

The F4000 FIP is the heart of the F4000 system. It is microprocessor based and is the MASTER display, operator control and Brigade Interface unit of the system.

A front panel view of the F4000 LCD FIP is shown in Figure 2.2. This shows a standard panel for up to 48 zones minimum. A 19" RAC cabinet version allows for 64 zones minimum.

Specifically its functions are:

(a) To constantly communicate with all Responders via the communications loop, to retrieve data from them, to transmit commands to them, and to monitor their integrity at all times.

(b) To process the data obtained from the Responders and to generate displays and annunciations as specified by AS1603.4, AS4050(INT), NZS4512 and any additional requests as entered by the operator. This includes:

  i) Up-dating the zone status LEDs to shown the ALARM, FAULT and ISOLATED conditions.

  ii) Controlling the relays that signal the Brigade.

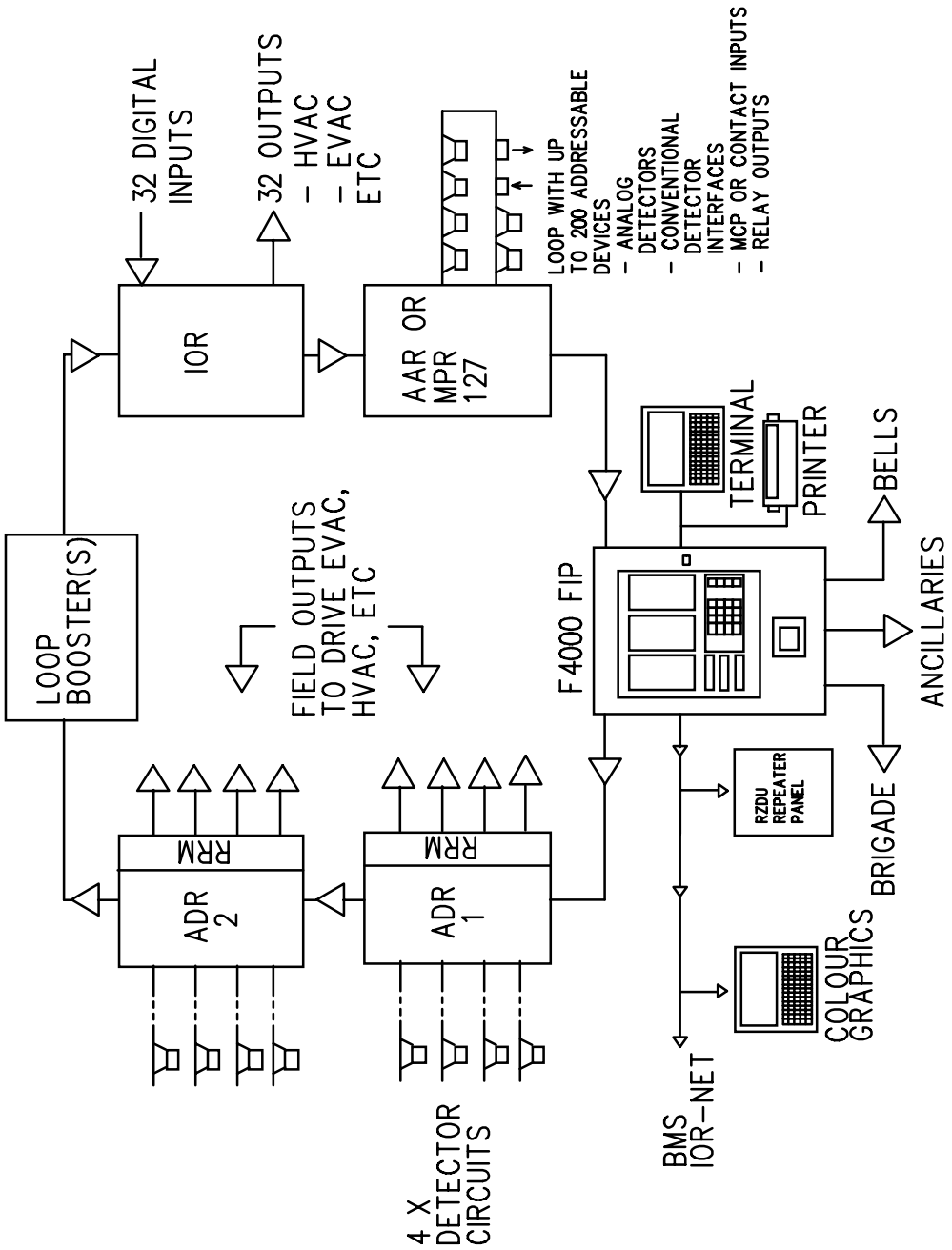


Figure 2.1
F4000 System Block Diagram

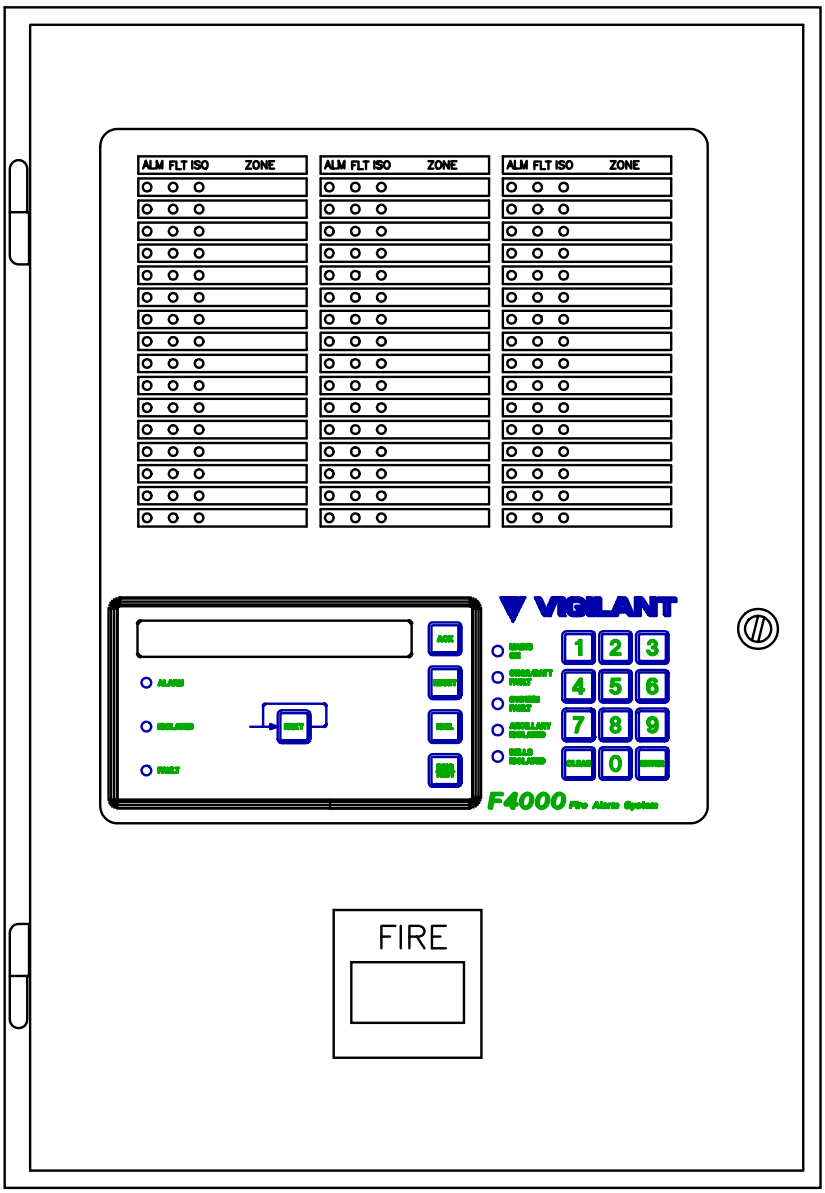


Figure 2.2
F4000 LCD Fire Indicator Panel

F4000 FIRE INDICATOR PANEL (FIP) (CONTINUED)

iii) Controlling the relays used to drive auxiliary system devices such as bells, door holders etc.

iv) Controlling remote plant by sending control data via the communications loop to Responders fitted with output devices.

(c) To provide a simplified operator/Brigade interface that allows personnel to easily control the day to day operation of the panel (eg: to acknowledge alarms, test zones, isolate zones, etc).

(d) To monitor its own integrity and annunciate internal fault conditions.

(e) To provide a means of entering or modifying configuration data or "SYSTEM DATABASE" from a Programming Terminal. This defines what the specific F4000 system consists of and how it should respond to inputs and control outputs.

2.1.3 RESPONDERS

The Responders are located around the protected premises and provide the interface between the detection devices and the F4000 System. They are low power devices, deriving their power from the 4 core communications loop that runs from the FIP, through each Responder, and back to the FIP again. The F4000 System can monitor and control a maximum of 127 Responders.

It is this loop system that makes the F4000 System so adaptable since larger systems are implemented simply by extending the loop and adding more Responders in the appropriate places.

To the "Operator" and "Fire Brigade", the Responders are "transparent" in that they simply serve as data concentration points and have no operator features themselves.

2.1.3.1 ADVANCED DETECTOR RESPONDER (ADR)

The ADR is the standard alarm zone circuit processing unit of the F4000 system. ADRs are therefore usually located near the zone circuit(s) they monitor. Up to four (4) Alarm Zone Circuits may be connected to each ADR to monitor the approved compatible actuating devices wired on the circuit.

The ADR may be upgraded to an "Advanced Relay (Detector) Responder" (ARR), with the addition of a plug-in Responder Relay Module (RRM). This adds four (4) relay outputs to the inputs provided on each ADR. Each relay can be programmed to operate on specific input conditions. Alternatively the relay may be configured to belong to an ANCILLARY CONTROL ZONE, so that operated, isolated and fault indications may be shown at the F4000 FIP.

2.1.3.2 ANALOGUE ADDRESSABLE RESPONDER (AAR)

The Analogue Addressable Responder (AAR) allows up to 200 analogue addressable devices to be connected on a loop of its own. These devices may be analogue addressable smoke detectors or addressable device units (ADU) that provide specific input and output facilities. The addressable devices may be mapped to zones in the same way that ADR circuits are.

2.1.3.3 INPUT OUTPUT RESPONDER (IOR)

The Input/Output Responder (IOR) provides up to 32 digital inputs and up to 32 digital (or relay) outputs, depending on its setup and the termination boards attached to it. To the FIP, the IOR appears to be up to 8 ADRs (or ARR). The IOR is ideal for when a large number of switched inputs or outputs are required at the same location.

2.1.3.4 MULTI-PROTOCOL RESPONDER (MPR)

The Multi-Protocol Responder (MPR) allows up to 200 analogue addressable devices to be connected on a loop of its own. These devices may be analogue addressable smoke detectors, addressable thermal detectors, addressable device units (ADU) that provide specific input and output facilities, or addressable monitor and control modules. The addressable devices may be mapped to zones in the same way that ADR circuits are.

MPRs with V1.01 or earlier software are limited to devices using the EWD protocol, ie Nittan analogue addressable smoke detectors, ADUx I/O devices and the Z54A addressable base. The operation of these MPRs is similar to the AAR.

MPRs with V2.00 or later software are able to communicate with one of two device families, i.e.

(a) **EWD Devices**,ie Nittan analogue addressable smoke detectors, ADUx I/O devices and the Z54A addressable base; or

(b) **"130 Series" Devices**, ie smoke detectors, thermal detectors, monitor modules and control modules.

EWD DEVICES	"130 SERIES" DEVICES
C7xA Smoke	C131A Smoke
P7xA Smoke	P131A Smoke
ADU002 Input	T131A (with Type A or B operation) Heat
ADU003A Output	ADM130 Input
ADU004A Output	ADM131 Input
ADU006 Conventional	ADM133 Input
Z54A Heat Base	ADC130 Output

The device family is programmable on a per MPR basis, and an F4000 system can support "130 Series" MPRs on the same F4000 responder loop.

2.1.4 F4000 COMMUNICATION LOOP

The F4000 "COMMUNICATIONS LOOP" is a 4 core loop that runs from the FIP, through each Responder, and back to the FIP again. The loop powers the responders, and allows the FIP to receive the circuit status from the responders and control their outputs.

The 4 wires of the communications loop are:

(a) Responder Power - 24V DC
(b) 0 Volt Common
(c) Communications Path 1
(d) Communications Path 2

The loop structure is such that it provides a very high degree of immunity against fault conditions. A short circuit between any two wires or an open circuit in any wire is detected and isolated so that the FIP is still able to power and communicate with all Responders.

2.1.5 REMOTE ZONE DISPLAY UNIT (RZDU)

The F4000 system may include up to eight (8) Remote Zone Display Units (RZDUs) that are monitored by the FIP, to provide repeater indicator panels at strategic points in large premises. (i.e. mimic the zone displays of the master FIP at other parts of the protected building). A number of additional non-monitored RZDUs and IO-NET boards may also be connected.

The RZDU may be LCD based like the FIP, or be LED only. With both types 'System' and 'Fire Brigade' functions are available via the keyboard.

Programming of the RZDU allows it to display only a selected range of the zones shown at the FIP. This could allow, for example, an RZDU on each floor of the building to show only those zones on that floor.

In combination with the FIP's ability to allow Brigade function keypresses from an RZDU to act upon a selected range of zones, RZDUs can provide for flexible zone display and control applications to be configured.

The RDU (an LCD-based RZDU) can also send Brigade Test, Bells Isolate/ De-Isolate, and Ancillary Isolate/De-Isolate commands to the FIP.

Additionally it allows individual zone acknowledgement, reset and isolate commands via the FFCIF, and zone reset, isolate, de-isolate and status recall from the standard menu system.

2.1.6 COLOUR GRAPHICS TERMINALS

The F4000 System supports the addition of colour graphics display and control terminals (CG4000) on the RZDU communication bus.

These units can be programmed to show graphical displays on zone alarm or fault conditions. The operator can use function keys or the optional touch screen to generate Silence, Reset and Isolate commands to the FIP and thus have remote control of the brigade functions. The CG4000 will run on an IBM AT or compatible computer.

2.1.7 LOGGING PRINTER

A serial printer may be connected to the F4000 Master FIP to provide a log of events and operator actions. The FIP can be programmed to print any combination of the following event types:

(i) Zone Events, e.g. Alarm, Fault;
(ii) Zone Commands, e.g. Reset, Isolate;
(iii) Circuit & Point Events, e.g. Alarm, Fault;
(iv) A 24 hour "System Running" event.

The printer will always print System Events, e.g. communications failures, battery faults, etc.

The printout includes the time and date, the cause of the event (e.g. Zone, Circuit, RZDU or FIP), and the event type. Events and commands for zones that have had a text name programmed also have the name printed. The FIP is able to store up to 200 events for printing, being the first 200 events to occur.

As events are printed, more events are able to be put into the list. If events cannot be put into the list because it is full, the FIP keeps count of those events it has had to discard.

LOGGING PRINTER (CONTINUED)

When the FIP is next able to put more events into the list, it prints out the number of events it had to discard.

The FIP separately maintains an internal history of the 900 most recent events. This history can be viewed on the LCD and via the programming terminal. It can also be printed out, and used to reconstruct the printer log if the F4000 FIP had to discard printer events.

2.1.8 PROGRAMMING/DIAGNOSTIC TERMINAL

The F4000 FIP also provides for the connection of a "PROGRAMMING/ DIAGNOSTIC TERMINAL", usually a personal computer, to configure the F4000 system and provide service diagnostic functions.

This is a temporary system component, and is ONLY required by the installer during commissioning, or service. In normal system operation this could be replaced by the logging printer for recording events and operation of controls.

2.1.9 NETWORKING OF F4000 FIPS

The F4000 Network LCD is an enhancement of the F4000 LCD that allows it to communicate with other Panel-link compatible network devices, e.g. other networked F4000 or F3200 fire panels, networked printers and Colour Graphic displays.

The networking feature allows for F4000 to share:

(i) Alarm information for display and control of alarms on the LCD. Alarms on one FIP can be displayed at other FIPs and Colour Graphics displays. Alarms can be acknowledged, reset and isolated from the FIPs and Colour Graphics displays.

(ii) Output Logic status, allowing status and controls generated by the Output Logic at one FIP to be used by the Output Logic at another FIP, e.g. for extended AS1668 Fan Controls.

(iii) MAF Status, so that one FIP can be a common brigade interface point for a number of FIPs elsewhere on site.

(iv) Event Information for status monitoring and network event printing on network printers and Colour Graphics displays, e.g. Overviews.

(v) Bells controls for activating, isolating and silencing the bells on remote FIPs as a result of alarms or operator controls on the local FIP.

(vi) Zone Circuit and Point Status for monitoring applications.

(vii) Control of F4000 LCD/keypads.

Networked F4000 FIPs allow an operator to send single zone and zone range reset, isolate and de-isolate commands to other FIPs; to recall and search for zone status on other F4000 FIPs; and to alarm, fault, auto reset and operate test zones on other F4000 FIPs.

NETWORKING OF F4000 FIPs (CONTINUED)

Networked F4000 FIPs allow an operator to send System commands to System, Battery and Bells test other FIPs, and to isolate and de-isolate bells and ancillaries at other F4000 FIPs. Network F4000 FIPs can receive commands sent by other devices on the network, eg. Colour Graphics, for control and test purposes.

Networked F4000 FIPs transmit local events and status onto the network for use by network printers and Colour Graphic systems to allow remote logging of events, eg. one or more system-wide event printers.

Networked F4000 FIPs are in most respects identical to a stand-alone F4000 FIP, except for the inclusion of a networking card and the addition of the panel number in zone and point numbering schemes.

Note, however, that configuration of a network F4000 may result in the functionality of the LCD being essentially the same as a non-networked F4000.

A programming terminal operator can connect to another F4000 over the network, and control and view that F4000 via its LCD and keypad as if the operator was at that F4000.

2.1.10 PROTOCOL TRANSLATION MODULE (PTM)

The PTM is used with F4000 networks and performs two functions:

(i) Interfaces a printer to the network for logging of events from panels on the network.

(ii) Interfaces “XL Graphics” colour graphics systems to the network.

2.1.11 PANEL-LINK MODBUS BRIDGE (PMB)

The PMB is used with F4000/F3200 networks to provide an interface into the network for other systems that can use the Modbus protocol.

The PMB is able to pass system, zone and point statuses and values to the Modbus system. It can also be used to pass commands back to the FIPs.

The PMB is used to interface Vigilant's Overview colour graphics systems to the F4000 network.

**** PLEASE NOTE ****

If your building or occupancy requirements change, then the F4000 FIP may require reprogramming, so please consult your installation or maintenance company.

2.2 LCD FIP DISPLAYS

Figure 2.3 shows the front panel layout for an F4000 LCD FIP panel.

The F4000 FIP panel provides indications for:

(a) FFCIF Alarm, Fault and Isolate
(b) System Status
(c) Zone Status (optional)

There are 3 LEDs in the red-bordered FFCIF area that show common zone status:

(a) Alarm (b) Fault (c) Isolate

The SYSTEM STATUS INDICATORS are a column of 5 LEDs beside the numeric keypad, that display the System Status information. The function of each LED is described alongside, namely from top down:

(a) Mains ON
(b) CHGR/BATT Fault
(c) System Fault
(d) Ancillary Isolated
(e) Bells Isolated

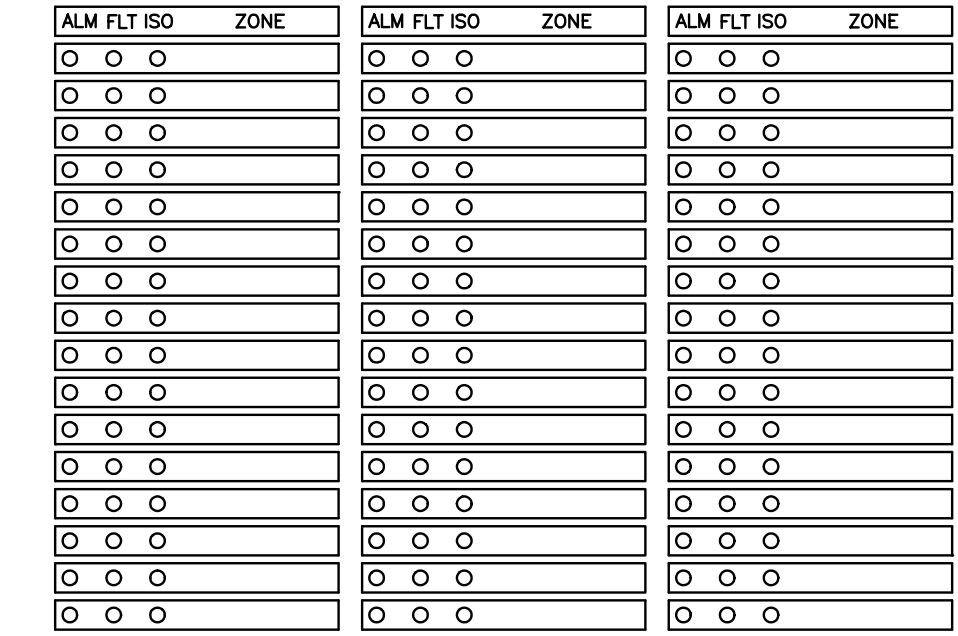
In addition, New Zealand F4000 FIPs have an extra 3 SYSTEM STATUS indicators on the display extender card:

(i) Normal (ii) Defect (iii) Fire

The optional ZONE STATUS INDICATORS display the status of each zone, whether an Alarm Zone Circuit (AZC) or an Ancillary Control Zone (ACZ). Each zone has the following three (3) indicators, and a space for installation dependent text, which is used to identify the zone number and description.

(a) Red alarm "ALM" LED
(b) Amber fault "FLT" LED
(c) Amber isolated "ISO" LED.

An LED display card is fitted to show the zone status for each sixteen zones. The minimum number of displays required at an F4000 LCD FIP panel is zero. However, 4 can be fitted in the standard cabinet (FP0746) for displaying up to 64 zones. For New Zealand systems, one of these positions will usually be taken up by the display extender board. Alternatively the F4000 may be supplied in a rack cabinet configuration, which provides up to 64 zones in each 7U module.



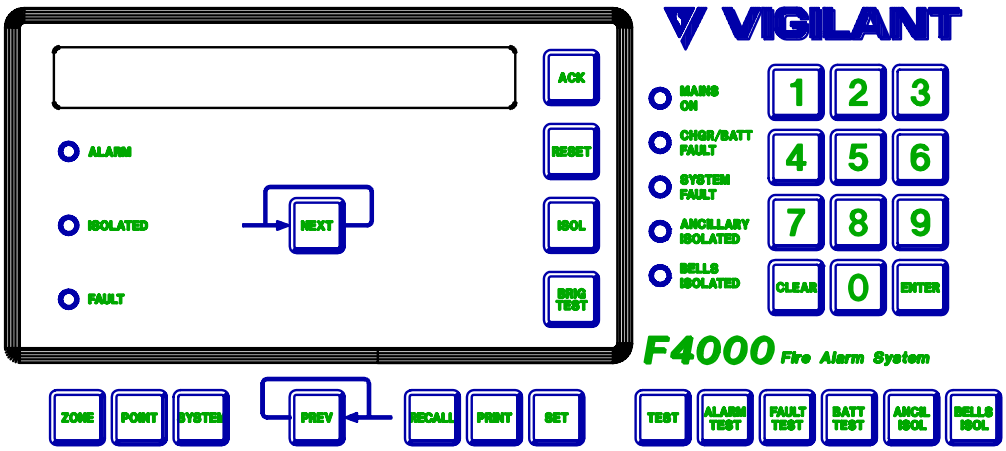


FIGURE 2.3
F4000 FIP DISPLAY

LCD FIP DISPLAYS (CONTINUED)

The LED indicators may be either:

(a) Unlit (OFF); or
(b) Slow Flashing (SF), every 2 seconds; or
(c) Flashing (F), every half a second; or
(d) Rapid Flashing (RF), 10 times per second; or
(e) Steady (ON).

In normal operation all LEDs are OFF, with the exception of the green "MAINS ON" LED indicator which is ON, and for New Zealand panels the "NORMAL" LED will be ON flashing. An internal sounder (buzzer) is used to alert the operator to certain conditions.

A detailed description of all indications is contained in Chapter 4 "Interpreting the Display".

2.3 LCD KEYPAD INTRODUCTION

The FIP LCD keypad is shown in Figure 2.4 and is divided into two sections, namely:

(a) "Fire Fighter's Control & Indicating Facility" (FFCIF):
The area within the red border, containing 5 keys, 3 LEDs, and the LCD.

(b) All other keys and indicators used for zone resetting, isolating, testing and information recall functions.

The two keyboard sections are not, however, entirely independent and some functions require use of both keypad sections.

If a keypress is valid the sounder will give a short beep whenever a key is pressed.

A longer duration error beep will sound to draw attention to illegal key presses. The FIP LCD may also display an error message. If this occurs, try the command or entry again.

For more details on specific operating instructions refer to Chapters 5, 6, 7, and 8, for "Brigade", "System", "Zone" and "Point" functions respectively.

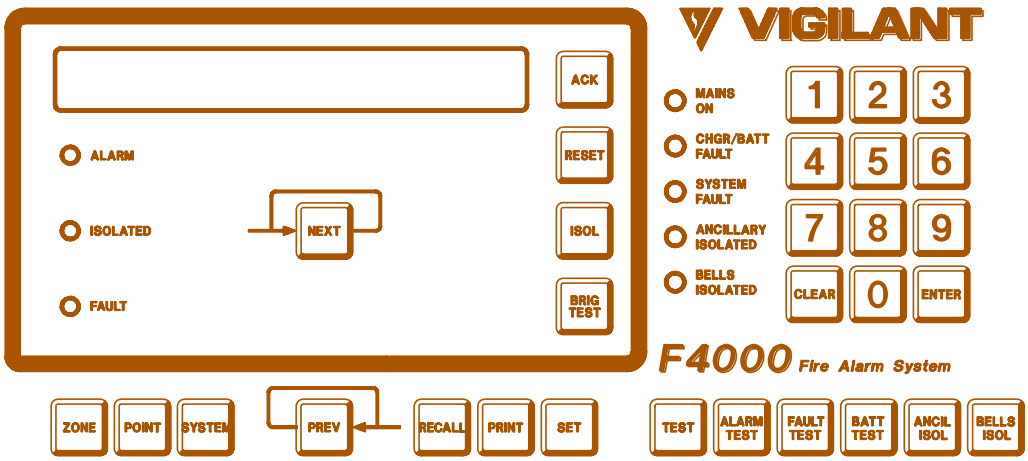


FIGURE 2.4
F4000 FIP KEYPAD LAYOUT

2.3.1 AVAILABLE FUNCTIONS

The F4000 LCD FIP provides all of the isolate and test functions of the original F4000 FIP. However, the new LCD and keypad allow for more features, such as status recalls, history recalls and setting of time and date.

The available functions accessible via the LCD keypad are:

Zone Functions
Reset
Isolate
Alarm/Fault/ACZ Operate/Auto Reset Tests

Point Functions
Reset Device/History/Tracking
View & Set Sensitivity
Isolate

System Functions
Test System
Battery Test
Bells Isolate
LED/Display Test
Bells Test
Brigade Test
System Fault Reset
Global Reset
Global Isolate

Recalls
Zone Alarm Events
Zone Alarms/Faults/Isolates/Off-Normals/Pre-Alarms
Analogue Values
Analogue Levels
Point Status
Point % Dirty
System Faults
History

AVAILABLE FUNCTIONS (CONTINUED)

CRCs/Date Time Database Last Changed

Set Commands
Time & Date
Passwords

Most functions are selected by entering a command sequence on the keypad. This manual explains the more basic sequences. Other sequences may exist, which are often the same command sequence with the order of the keypresses altered, or special short cut sequences.

Operators will discover these shortcuts primarily by using the keypad and gaining experience of its capabilities.

2.3.2 ACCESSING A PARTICULAR FUNCTION

To access any particular function, the keypad and LCD provide a number of different paths. Some functions are accessible by a single keypress.

For example, pressing the "RESET" key followed by the "ZONE" key and zone number, or pressing the "ZONE" key followed by the zone number then the "RESET" key, will both result in access to the zone reset function.

Often, the entry of a command sequence will require a number to be entered, e.g. a zone number, or time and date.

2.3.3 MENU OPTION SELECTION

The menuing system on the LCD presents the options available by displaying an option number e.g. 1, followed by the option, e.g. RESET. Selection of any option is possible by two methods:

(a) Press the number key corresponding to the option required e.g. pressing the "1" key for the "1:RESET" option will select "RESET".

(b) If the option has an equivalent key on the keypad, press that key, e.g. for the example in (a), pressing the "RESET" key would also select the "RESET" option. This may not be possible in some menus, to avoid ambiguities.

(c) If a "MORE" option is displayed, the "MORE" option can often be selected by pressing the same key that was used to access the particular menu.

2.3.4 LCD KEYPAD NUMBER ENTRY

When entry of a number is requested, a cursor will be displayed. The standard entry keys are the number keys, "0" to "9" and the "POINT" key.
To enter a number, press each number key as required. The LCD will display each digit as it is entered. Pressing the "POINT" key displays a ".". This is used to separate numbers, e.g. for zone ranges, or time and date entry.

If an error is made, pressing the "CLEAR" key will wipe any number entry made so far and allow the correct number to be entered.

LCD KEYPAD NUMBER ENTRY (CONTINUED)

If the "CLEAR" key is pressed when no number has been entered, the LCD keypad will "step back" to the menu or display what was shown before the number was requested.

Pressing the "ENTER" key signals the LCD keypad that the number entry is complete, and that the number should be checked for validity. If it is valid, the next stage in the menu is displayed. Note that various shortcuts may also be permitted to end number entry and to automatically select an option from the next menu. Refer Section 2.3.5.

2.3.5 COMMAND ENTRY SHORTCUT

To allow operators to perform functions quickly, the LCD keypad provides some shortcut sequences. These allow faster access to functions by shortening the key entry sequences.

Some menus consist of 2 or more menu displays. The next set of options is displayed by selecting the "MORE" option. In a number of cases, menu options in a subsequent display can be selected by pressing the keypad key that equates to the selection in the subsequent display (not the number key that would be used to select the option if that menu was displayed).

As an example, the RECALL menu has two displays. The ZONE option is in the second menu display.

To access the recall zone menu, an operator can either:
(i) Press the "RECALL" key to access the RECALL menu,
Press the "RECALL" or "4" key to access the second display (MORE option),
Press the "1" or the "ZONE" key to access the "ZONE RECALL" display,

or alternatively,
(ii) Press the "RECALL" key to access the RECALL menu,
Press the "ZONE" key to access the ZONE RECALL menu.

In general, the "ENTER" key is pressed to indicate that entry of a number is complete. In some of cases, other keys may be pressed which have the same effect as the "ENTER" key, but also provide a shortcut by automatically selecting an option from the next menu.

As an example, to Reset Zone 15, an operator may enter either of the following key sequences.
(i) "ZONE", "1", "5", "ENTER", "RESET", or
(ii) "ZONE", "1", "5", "RESET".

The "NEXT" and "PREV" keys can be used in a number of menu options to change the selection. For example, when the zone function menu is displayed ("RESET, ISOLATE, RECALL, TEST, SET") a zone number is displayed along with the zone description. Pressing the "NEXT" key will select the next numbered zone, pressing the "PREV" key will select the previous numbered zone. Any subsequent menu option entered will act upon the newly selected zone.

In some cases, the "NEXT" and "PREV" keys may not be valid, if stepping to the next or previous device would result in an invalid selection, e.g. zone testing an ACZ.

The Point number entry prompt has a special entry shortcut. If no point number has been entered when the "Enter" key, or any other valid shortcut key, is pressed the F4000 automatically selects the first configured point, if any.

2.3.6 THE "CLEAR" KEY & THE ABORT SEQUENCE

The "CLEAR" key, when pressed once, is used to step backwards through the previously entered command sequence.

2.3.7 THE "BRIG TEST" KEY

The Brigade test key, "BRIG TEST", can be pressed at any time, regardless of any command sequence being entered.

The "BRIG TEST" key, when pressed and held for 2 seconds, signals an alarm to the brigade, plus the FFCIF alarm LED is turned ON.

The brigade alarm condition is active for as long as the "BRIG TEST" key is held down. When it is released, the brigade test condition is removed, and if there is no MAF alarm the brigade alarm relay and FFCIF alarm LED will return to their inactive states.

Note that in some cases, activation of the brigade test function may be programmed to be disabled, although activation of ancillary functions controlled by the BGT token will still occur if the key is pressed and held.

2.3.8 LCD INFORMATION DISPLAYS

When the LCD is not displaying the alarm list or being used for entry of a command sequence, it shows one of the following information displays:

(a) Base Display - in general, this shows the system name and current time and date. In addition, another field indicates the software version, whether the FIP has processing enabled, is Automatic testing, or Powering up. If off-normal conditions exist, totals of the off-normal states, or a fault action text, are displayed.

The actual display shown depends upon the current state of the FIP.

A special form of the base display is active whenever the Fault Sounder is operated. In this case, the LCD indicates that a fault is present, and displays a fault action text that will have been configured by the installer of the system.

Pressing any key will stop the fault sounder, which also clears the message from the display. An operator can then ascertain the source of the fault using the LCD keypad (eg offnormal counts, fault recalls) and the status LEDs.

(b) Zone Recall Display - shows zone status for a particular zone. The "NEXT" and "PREV" keys can be used to select a different zone. The "next" and "previous" zone displayed is dependant upon the selected recall, e.g. all zones, only those zones in alarm, only those zones that are isolated, etc.

(c) Point Recall Display - shows either point status (alarm, fault, etc), analogue values (current and tracked values, history), analogue levels (current levels and sensitivities), or detector % dirty information.

F4000 V2.35 treats ADR circuits and relays as points, thus their status can be recalled and searched.

LCD INFORMATION DISPLAYS (CONTINUED)

The "NEXT" and "PREV" keys display the information for the next or previous point. The selection of the point depends upon the mode of the recall, either all points, or searches for point status meeting certain criteria e.g. points in dirty alert.

(d) History Recall Display - displays the stored event history. Newer and older events are displayed by pressing the "NEXT" and "PREV" key respectively.

Pressing the "CLEAR" key whilst in the Zone Recall, Point Recall or History Recall displays will make the system revert to the Base Display. All command sequences can be started from any of the displays. Note, however, that how some command sequences proceed is dependent upon which display was being shown. Refer Section 2.3.9 Starting Command Sequences from Different Information Displays.

2.3.9 STARTING COMMAND SEQUENCES FROM DIFFERENT INFORMATION DISPLAYS

The LCD keypad is usually in one of three modes:

(i) Alarm List display, or "FFCIF", when alarms exist in the fire alarm system.

(ii) Command Sequence Entry, when commands are being entered.

(iii) Information Display mode, when zone status, point status, time and date or history recalls are being shown.

Often, the pressing of a key to start a command sequence will have a different effect, depending upon what mode the LCD was in.

As an example, pressing the "ZONE" key whilst the time and date are being displayed, will result in a prompt for a zone number. If zone information was being displayed, however, the LCD keypad would assume that the zone being viewed is the zone to be selected, and no zone number would be requested.

If the LCD makes an assumption that is not correct, pressing the "CLEAR" key will allow an operator to recover to a position at which, for example, the required zone number can be entered, or, an alternative command sequence entered.

As a example, if zone status is displayed, and an operator wishes to reset system faults, then pressing the "SYSTEM" key, followed by the "RESET" key results in the required function being executed. However, if the "RESET" key had been pressed first, the LCD keypad would have queried whether the zone that was displayed should be reset. In the event of this occurring, pressing the "CLEAR" key will make the LCD keypad revert to the zone status display. The "SYSTEM RESET" command sequence can then be used to execute the required function.

Alternately, the "Clear" key can be pressed until the base display is obtained.

2.4 AUDIBLE TONES

Any requirement for operator intervention is signalled by the sounding of the FIP's internal buzzer. The buzzer can be activated in a number of different modes, each of which gives some indication as to the type of event that has occurred. The internal sounder provides the following audible tones in order of decreasing priority (see note below):

(a) ZONE / SYSTEM FAULT - Steady Tone

A continuous tone indicates that an un-isolated zone has gone into FAULT, or a system fault has been detected. Note that the Zone Fault buzzer can be disabled by programming, and for V2.31(N) or later FIPs the zone/system fault tone can be made to be of lower priority than the zone alarm tone.

(b) KEYPAD "INPUT ERROR" - Long single beep

(c) KEYPAD "KEY ACCEPT" - Short single beep

(d) ZONE ALARM - Two Beeps per Second

A regular, two beeps per second tone, indicates that an un-isolated MAF mapped zone has gone into ALARM. Note that the Zone Alarm buzzer can be programmed to be disabled, or made the highest priority tone (V2.31(N) or later).

(e) TEST FAIL - Fast Pulsing Beeps

A 4 fast beeps then pause tone indicates that a zone, system, or power-up test has failed.

(f) PANEL FAULT / DOOR INTERLOCK - Slow Beeping

A long beep followed by a pause tone. This can indicate specific types of panel faults, please call service. If the FIP is not able to process alarms, if certain tests are operating or links are in incorrect positions, the buzzer will sound in this manner if the door is closed.

Pressing any keypad key will automatically silence the buzzer.

2.5 NETWORKED PANELS

2.5.1 NETWORK FIP & NETWORK ZONE NUMBERING

When F4000 FIPs are networked together there must be a way to identify each FIP and the zones on that FIP.

In this manual, reference is made to "local" and "remote" panels. A local panel is the panel at which an operator is controlling the system from. Remote panels are all other panels on the network. This applies even if a number of networked panels are co-located.

When a networked FIP is configured, it is programmed with a unique number between 1 and 254. This is its System Identification Number, or SID. The SID is used to:

(a) Identify a specific FIP.
(b) Identify a zone on a specific FIP, by combining the SID and Zone number as detailed below.

For a networked F4000, zone numbers and zone ranges fall into 3 formats:

(i) Zone number(s) less than 1000 are local zones, ie. specific to the panel at which the number is being entered or displayed, eg. Z57, Z135.189.

(ii) Zone number(s) greater than, or equal to, 1000 are network zones, eg. Z32105 or Z17001.17095. The SID of the FIP that has the zone is the network zone number divided by 1000. The actual zone number on that FIP is the remainder after dividing by 1000. Eg.

	Z1057	is	Zone 57	on FIP number 1.
	Z35218	is	Zone 218	on FIP number 35.

Note that all zeros must be entered, eg. for Zone 1 on Panel 2, the entry must be 2001, ie. the intermediatory 0's are necessary.

(iii) Zone numbers less than 1000 preceded by the SID of the FIP that has the zone(s).
Eg. (a) Z57:1 - Zone 1 on Panel 57.
(b) Z2:135.208 - Zones 135 to 208 on Panel 2.
(c) Z61..72 - Zone 72 on Panel 61.
(d) Z85..24.154 - Zones 24 to 154 on Panel 85.

The SID comes before the colon ":" or double points "..".
The zone numbers come after the colon or double points.

A colon is entered using the SYSTEM key. Double points are entered by pressing the POINT or hidden key twice.

For F4000, zone numbers can be entered in any of the above formats. However, F4000 will reject any zone range that extends across more than one FIP, eg. Z35097.36002 is illegal.

F4000 always displays network zones in format (ii).

If a zone number or range is entered in formats (i) or (ii), and the SID is that of the local F4000, then the zone(s) may be converted back to format (i) for local processing.

When alarm events are sent from one FIP to another on the network, the zone number sent is automatically pre-formatted into the network zone format (ii) for display on the LCD.

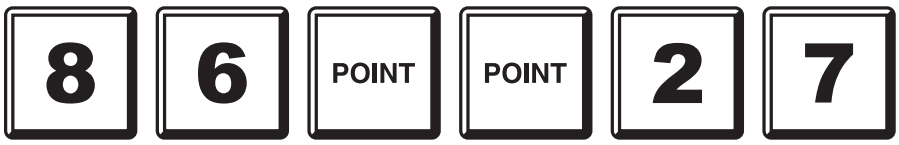
2.5.2 ZONE NUMBER ENTRY EXAMPLES

(i) Zone 27 on Local Panel.

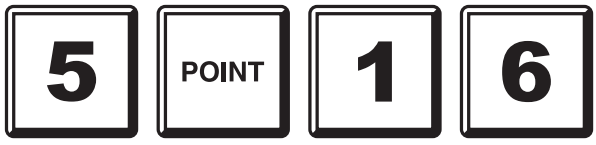
(ii) Zone 27 on Panel 86.

OR

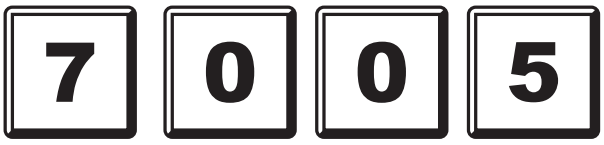
OR



(iii) Zones 5 to 16 on local panel.



(iv) Zones 5 to 16 on Panel 7.



2.5.3 ZONE FUNCTION CHANGES

The zone functions at a networked F4000 are altered in the following ways:

(i) Network zone number and ranges entry is permitted, although not all functions can be executed on Network Zones.

(ii) Reset, Isolate and De-Isolate commands can be issued to Network Zones and Zone Ranges.

(iii) Zone tests can be issued to zones on other network FIPs.

(iv) The status of zones on other network FIPs can be recalled, and can be searched for, across the network.

2.5.4 SYSTEM FUNCTION CHANGES

The system functions at a networked F4000 are altered in the following ways:

(i) When the SYSTEM key is pressed, a prompt is displayed allowing selection of either the local system or a system elsewhere on the network.

(ii) The following functions can be initiated at a network F4000 by another network F4000 panel.
- Ancillary Isolate/De-Isolate
- Battery Test
- Bells Isolate/De-Isolate/Test
- Bells Test
- System Test
- System Reset

(iii) A network F4000 may be programmed to act as a common brigade interface point for a system, and/or display the off-normal totals for the whole network system.

(iv) A network F4000 may be programmed to allow control of its bells by other FIPs on the network. Alarms or Trial Evacuation (NZ) on other FIPs may turn the local bells ON. The bells may be silenced as a result of isolating the bells at another FIP or activation of Silence Alarms at another FIP (NZ).

(v) A network F4000 can recall an overview of the system status of other FIPs on the network.

(vi) A network F4000 may be programmed to have its internal sounder silencable as a result of the actions of remote operators.

2.5.5 OPERATIONAL DIFFERENCES

For V2.3xN, operation of the LCD keypad is modified to take into account alarms in the FFCIF list and the displayable totals that have come from other FIPs on the network.

In the following, alarms in the FFCIF list include local and any remote alarms, and the totals are the combination of local and any remote totals.

(a) The Alarm LED will be on:

Flashing: Any unacknowledged alarm in the FFCIF list, or any unacknowledged zone alarm on the local FIP.

Steady: If any alarms are in the FFCIF list, and all are acknowledged, or if the alarms total on the base display is not zero, or if there is a zone in alarm on the local FIP.

(b) The Fault LED will be on:

Steady: If the faults total on the base display is not zero, or if there is a zone in fault on the local FIP.

(c) The Isolated LED will be on:

Steady: If the isolates total on the base display is not zero.

Flashing: If any point on the local FIP is isolated or a point on a network FIP is isolated and the F4000 is combining MAF status.

(d) The FIP buzzer turns on:

Steady: Upon a local fault or system fault, or the occurrence of a fault on a networked FIP whose SID is programmed into the SID list of this FIP and the local FIP is programmed to display network totals. At the base display, the Fault Action Text will also be displayed.

Pulsing: Upon a new alarm (local or network) being put into the FFCIF list, or a new MAF alarm on the local FIP.

Rapid Pulsing: Upon a local test failure, eg. system test.

The FIP buzzer is cancelled:

- Whenever a key is pressed on the FIP keypad.
- For Alarms when there are no more alarms in the FFCIF list or unisolated alarms on the local FIP.
- For Faults when there are no more unisolated faults on the local FIP, or on any networked FIPs which can turn the fault buzzer on at the local FIP
- Upon reception of remote System Fault Reset, FFCIF commands or any commands, if enabled by programming. (Refer 3.10).

OPERATIONAL DIFFERENCES (CONTINUED)

A number of keypad functions that take time to complete, eg. zone isolate/de-isolate and zone searches, have a simple flashing asterisk that indicates that the function is still operating.

A significant point to note is that the networking of FIPs introduces delays when showing data and responding to commands. These delays did not exist where there was only a single FIP to be controlled, because the information was immediately onhand. With networks, this is not the case, and delays arise due to the time taken to access the information.

Consequently, allowance must be made for these delays when operating a networked FIP. The effect of these delays are noted below, and in the following sections for the affected keypad commands.

There may be a noticeable delay at times when a network F4000 attempts to retrieve text and status from another network panel. If there will be a delay, F4000 will display a minimal description on the LCD, eg. Z1057 or Network Panel 75. The actual status will be shown when the true zone name text (if programmed at the remote FIP) is displayed.

Operators of networked FIPs must be aware that they should wait until the FIP has retrieved the information before issuing any command, partly to ensure that the command they send will not have an adverse effect, i.e. deisolating a zone in alarm, and also because operators on other FIPs or colour graphics displays may also be trying to control the same zone.

Confusion can also arise due to the delay if a zone has just been isolated: the FIP may briefly indicate that the zone is not isolated. However, after at most a few seconds, the display will be updated to show the correctly isolated status.

Network F4000 FIPs can combine the MAF status from other FIPs on the network. This combined status is then used to drive brigade relays, etc.

F4000 V2.3xN has special handling for a Standby condition received from another FIP. Remote Standby conditions do NOT result in the local FIP's Standby relay de-asserting itself, rather, the remote Standby condition is treated as a System Fault, i.e. the fault relay activates, the System Fault LED turns on, and the fault buzzer may sound. Standby and System Fault from the other FIP can be viewed as separate items in the System Fault Display.

2.5.6 NETWORK COMMAND TRANSFERS & RESPONSES

Whenever entry of a network command is completed, the F4000 attempts to send the command to the correct panel on the network. It will then wait for a response from the receiving panel.

The F4000 LCD display will show messages during this time to indicate what is happening.

"Network Command Sent" - the F4000 successfully stored the message for sending to the other panel. The F4000 network driver will send the message across the network.

"Network Command NOT Sent" - the F4000 could not send the message because of high network loading, or because the LCD display was still awaiting a response to its last request for data.

"Network Command Accepted" - the receiving F4000 received the command and processed it.

Note that even though a remote panel accepts the command, it may not action it. In this case an exception message may be sent back to the originating panel - refer Section 2.5.7.

"Network Command NOT Accepted" - the receiving F4000 received the command but did not process it. This may be due to a number of factors:

- The command was invalid because, for example, the zone number was invalid, or the command issued could not be executed on the command subject, eg. trying to alarm test an ACZ.

- The command could not be executed because: a similar but mutually exclusive command was in progress (Reset); only one of the particular command could be executed at the same time (Alarm Test); or the receiving F4000 was in a state which means that the command could not be executed. (No processing).

"Network Command NOT Ackd" - the receiving F4000 should respond as soon as possible with an Accepted or NOT Accepted response. If network loading is high, or the remote F4000 is busy or is off line, a response may not be received within the programmed time. If the time limit is exceeded, the local F4000 displays the above message. Note that depending on the circumstances, the command may or may not have been received and processed.

2.5.7 NETWORK EXCEPTIONS

2.5.7.1 GENERAL

Network commands issued by one network FIP and sent to another may result in some event, error or "exception" that it is desirable to display at the source of the command.

These exceptions may occur a significant period of time after the original command was sent and accepted. An operator may need to remember what commands were sent to a particular network FIP to be able to interpret the exception correctly.

As an example of an exception, a multi-zone de-isolation may leave some zones isolated, because some zones have an active alarm or fault status.

A network panel is able to send special messages to the source of the command, indicating the type of exception that has occurred. The receiver of the exception can then recognise and display the data appropriately.

Exceptions have a level of priority assigned to them by the sender. An F4000 can be programmed as to which priorities of exceptions get displayed, and which get ignored. Consequently, some F4000s may only display more urgent exceptions, while others show both the more urgent and less urgent exceptions.

2.5.7.2 DISPLAY OF EXCEPTIONS AT AN F4000 LCD FIP

When an exception is received by an F4000, the following occurs:

(i) If the FFCIF is not active:

  (a) The LCD/keypad is interrupted from what it is displaying (although any background display processing still operates, eg. zone or point status searches).

  (b) The LCD displays the SID number of the panel that sent the exception and a "Press any key" prompt on the first line, and the exception message received on the second line.

  (c) Pressing any key will clear the exception display and the LCD keypad will revert to its original display.

  (d) If the FFCIF becomes active while an exception display is being displayed, the exception is automatically cleared.

  (e) Any new exception received before the current exception is cleared will be ignored.

(ii) If the FFCIF is active, the received exception is discarded, so as not to disturb the alarm information displayed.

2.5.7.3 F4000 EXCEPTION EXAMPLES

Network F4000s are able to generate the following exception messages:

"Not All Zones De-Isolated"
The zone range de-isolation command processed did not de-isolate one or more zones because they were in alarm or fault.

"Zxxxxx Test Passed"
"Zxxxxx Test Failed"
"Zxxxxx Test Aborted"
"Zxxxxx Test Time Out"
The previous Zone test command issued to zone xxxxx had the noted result.

"System Test Passed"
"System Test Failed"
"System Test Aborted"
The previous System test command had the noted result.

"Battery Test Passed"
"Battery Test Failed"
"Battery Test Aborted"
The previous Battery test command had the noted result

2.5.8 NETWORK F4000 LCD DISPLAYS

A network F4000 may be programmed to display either its own off-normal totals or a combination of its own totals and the off-normal totals of other devices on the network.

Consequently, some totals may exceed the maximum totals expected for a single F4000 panel.

If there are no off-normals, the "base" display of the F4000 LCD displays the system name, date and time, and F4000 software version. The software version text can be replaced by text that indicates the operational state of the F4000, eg. testing, no processing, etc.

The number of texts that can be shown has been increased to handle the cases where tests have been started by operators at other panels on the network. The texts are:

"F4000 V2.3xN"	V2.3xN Default text.
"AUTOMATIC TESTING"	An automatic daily test is running.
"SYSTEM TESTING"	A remotely initiated system test is running.
"BATTERY TESTING"	A remotely initiated battery test or NZ 1 hour battery test is running.
"ACZ TESTING"	A remotely initiated ACZ test is running.
"ZONE TESTING"	A remotely initiated Zone test is running.

The Fault Action text will still override the above texts if the fault buzzer turns on.

2.5.9 NETWORK FAULT FINDING

When any network fault exists, F4000 annunciates a System Fault, signals fault to the brigade and turns on the System Fault LED. An operator who uses the System Fault Recall facility will then see in addition to any other faults "NetFlt" on Page 4 of the recall. The Network Panel System Fault pages will show which panels also have Network faults and/or are scan failed.

There are a number of faults that will turn on NetFlt and each generates a history/printer event as per Section 6.8.3 Printer/History events.

To discover the cause of the network fault, recall the history via the LCD keypad or a laptop, or review any event printouts. Network events have a time/date followed by "SID nnn", where nnn is the SID of the remote panel that caused the event and will usually be between 1 and 254. A SID of 0 will most likely occur for the NET MSG DISCARDED event and indicates that a broadcast message, i.e. a message that it is intended all panels receive, has been discarded.

Most network faults are non-latching.

All network faults can be cleared by a System Fault Reset command. If the fault still exists, then it will be re-annunciated.

2.5.10 NETWORK BELLS CONTROL

A V2.3xN F4000 can be configured to allow network bells control. The new functionality is primarily of use by networks in New Zealand, but some features can be used by Australian systems to achieve network-wide bells control.

Network Bells control consists of 2 functions:

(i) Turning the bells ON, for alarms and Trial Evacuation (NZ).

(ii) Silencing the bells on Network FIPs due to a Silence Alarms Activation (NZ) or optionally by having the Bells Isolated at one or more FIPs on the Network.

If the local F4000 has Network Bells Control enabled, an unisolated MAF alarm at another FIP on the Network will cause the local bells to turn ON, so long as the local bells are not silenced or isolated.

If the local F4000 has Network Bells Control enabled, Trial Evacuation (NZ) at another FIP on the Network will ALWAYS turn the local bells ON.

If the local F4000 has Network Bells Control enabled, reception of a Silence Alarms from another FIP will always turns the bells OFF, unless they are ON because of a Trial Evacuation.

In New Zealand, Silence Alarms is usually generated by operation of a switch.

For Australian and New Zealand operation, an F4000 can be configured to also send Silence Alarms whenever the Local Bells are Isolated. Consequently, isolating the bells at one FIP can silence all bells on the network.

NETWORK BELLS CONTROL (CONTINUED)

The Bells Isolate LED now has 4 distinct cadences which identify whether the bells can ring, and, if not, how the bells have been silenced:

OFF	- Bells will ring on alarm.
ON	- Bells have been locally isolated.
SLOW FLASHING	- Bells have been silenced remotely, i.e. RZDU or another Network F4000.
2Hz FLASHING	- Bells have been locally silenced.

If the local F4000 is configured to send Silence Alarms whenever its bells are isolated, and other F4000s are configured for Network Bells Control, then isolating the local bells will cause the local Bells Isolate LED to be ON steady, whereas the Bells Isolate LEDs on the other F4000s will be slow flashing, indicating they are remotely silenced.

If more than one F4000 has its bells isolated or silenced, then ALL F4000 Bells Isolate LEDs will be slow flashing. In this situation, it will be necessary to find all FIPs with Isolated Bells or local Silence Alarms using the LCD keypad System Fault Recall.

When another F4000 is found to have its bells isolated, they can be de-isolated using the Network System Bells Isolate LCD/Keypad command. If an F4000 is found to have its local Silence Alarms activated, then it is necessary to un-silence that F4000 by checking its own Silence Alarms switch and the switches at any RDU connected to that F4000.

Once all local and remote Bell Isolations and Silence Alarms have been removed, the local bells will be able to ring.

If a remote F4000 sending Trial Evacuation or Silence Alarms onto the network becomes scan failed, each condition can be cleared at a local FIP by activating Silence Alarms or Trial Evacuation, respectively, at the local FIP, or both conditions can be cleared by pressing Bells Isolate at the local FIP.

Other network F4000s receiving the new Silence Alarms / Trial Evacuation activations will clear these statuses from the scan failed F4000 in a similar manner, i.e. one F4000 can clear the conditions from the scan failed FIP at other F4000s on the network.

Pressing the Local Bells Isolate key will cancel any Trial Evacuation and Silence Alarms on the local F4000 that have been activated by a scan failed F4000. It will also cancel the Trial Evacuation state at other FIPs if the Local Bells Isolate state is configured to send a Network Silence Alarms state.

2.5.11 NETWORK SOUNDER CONTROL

All F4000 FIPs silence their internal sounders when a key on the keypad is pressed.

All F4000 V2.34N or earlier FIPs silence their local sounder if they receive a System Fault Reset command from the network.

F4000 V2.35N may be additionally programmed to silence the sounder if an FFCIF command is received, or a Network command is received. Alternatively, Local Sounder Silencing due to any network command can be disabled.

3 SYSTEM SPECIFICATIONS

3.1 SYSTEM CAPACITY

Input Circuits	- Up to 508
Circuit Detector Load (MAX)	- 2.5mA for Active EOL (FP0472 ADR) - 4.0mA for Active EOL (FP0523 ADR) - 4.0mA for Active EOL (FP0755 ADR-M) - 120μA for Passive 39K EOL
Display Zones	- Up to 528
Input to Zone Map	- Freely Programmable
Control Outputs	- Up to 508 plus Master Ancillary Relay
Maximum Responders	- 127
Remote Display Units	- Up to 8 (additional mimics allowed)
Maximum Zones per Unit	- 64-192 in 19" cabinets (256 in Extender)
Other Inputs	- Supervised MCP on cabinet (not large 19" cabinets)
FIP Relays	- Master Alarm (MAF) (2 OFF), Fault, Standby, Isolate, Bells, Ancillary
Relay Ratings	- FIP: 2A at 30 VDC RRM: 1A at 30 VDC
Serial Port	- Programmer Terminal/Printer
Serial Port Protocol	- XON/OFF 300,1200,9600 baud, 8 bits, no parity
Other Ports	- RZDU, Spare and Network
Port Protection	- All to AS1603.4 1987 Admt 1 & 2
Communications Loop	- 4 Wire (24 VDC, 0 VDC, TX, RX) - O/C and S/C Fault Tolerant
Alarm Response Time	- 3.8 seconds MAX (127 Logical Responders)
History Log	- 900 events
Printer Buffer	- 170 events
Mimic Driver	- ALARM LEDs

3.2 PHYSICAL

3.2.1 FIP, EXTENDERS, RZDUS

Standard Cabinets

Cabinet Size	- 750 mm(H) x 550 mm(W) x 210 mm(D) + 20 mm MCP
Cabinet Material	- 1.2 mm Mild steel
Cabinet Finish	- Baked Epoxy painted
Cabinet Colour	- Cream Wrinkle BFF998 CW
Mounting	- Wall mount (4 Holes)
Access	- Outer door left hinged (L003 key locked) - Inner door right hinged. (fastened)
Shipping Weight	- 21 kg (not including batteries)
Cabinet Rating	- IP51

19" RAC Cabinets

Cabinet Size	- 18U - 885mm (H) x 575 mm(W) x 380 mm(D) - 885mm (H) x 575 mm(W) x 205 mm(D) - 21U – 1050mm (H) x 575mm (W) x 355mm(D) - 28U - 1330mm (H) x 575 mm(W) x 380 mm(D) - 1330mm (H) x 575 mm(W) x 205 mm(D) - 40U - 1865mm (H) x 575 mm(W) x 380 mm(D) - 1865mm (H) x 575 mm(W) x 205 mm(D)
Cabinet Material	- 1.6 mm Mild steel
Cabinet Finish	- Baked Epoxy painted
Cabinet Colour	- Cream Wrinkle BFF998 CW
Mounting	- Wall Mount 18U - 4 holes 21U - 4 holes 28U - 6 holes 40U - 8 holes
Access	- Outer door left or right hinged (L003 key locked) - Inner door right hinged (fastened)
Cabinet Rating	- IP51

NOTE: Special cabinet sizes, material or IP ratings are also available.

3.2.2 RESPONDER UNITS - ADR, AAR, MPR

Size	- 240 mm(H) x 180 mm(W) x 50 mm(D)
Material	- 1.0 mm Mild steel
Finish	- Galvanised
Mounting	- Surface/Wall mount
Access	- Cover by Screws
Shipping Weight	- 1.5 kg (not including RRM) - ADR/AAR/MPR
IP Rating	- IP51

3.2.3 RESPONDER UNITS - IOR

PCB Sizes	- IOR	270mm x 180mm
	16 Way Relay Board	470mm x 93mm
	16 Way Termination Board	140mm x 93mm
	32 Way Termination Board	270mm x 93mm
Weight	- IOR	300gm
	16 Way IOR Relay Board	260gm
	16 way Termination Board	90gm
	32 Way Termination Board	170gm
	Gear Plate	2.6kg

3.2.4 REMOTE DISPLAY UNIT (RDU)

3.2.4.1 WALL MOUNTING RDU WITH MAF

Size	750mm (H) x 550mm (W) x 210mm (D) * MCP is an additional 20mm.
Material	1.2mm and 1.6mm mild steel
Finish	Powdercoat BFF-998-CW Cream Wrinkle (Iron Phosphate pre-treat)
Shipping Weight	22kg

3.2.4.2 WALL MOUNTING LOW PROFILE RDU

Size	177mm (H) x 450mm (W) x 50mm (D)
Material	1.2mm mild steel
Finish	Powdercoat PR12/816C Grey (Iron Phosphate pre-treat)
Shipping Weight	3kg

3.2.5 PROTOCOL TRANSLATION MODULE (PTM)

Size	450mm (W) x 280mm (D) x 85mm (H)
Material	1.2mm mild steel
Finish	Cover: Powdercoat Cream Wrinkle BFF-998-CW (Iron Phosphate pretreat)
	Base: Zinc Plate, Blue Passivate
Shipping Weight	3kg

3.2.6 PANEL-LINK MODBUS BRIDGE (PMB)

Size	295mm (H) x 240mm (W) x 80mm (D)
Material	1.2mm mild steel
Finish	Powdercoat Cream Wrinkle BFF-998-CW (Iron Phosphate pretreat)
Shipping Weight	4kg

3.3 ELECTRICAL

Mains	-	240 VAC +6% -10%, 50 Hz, 150W
Internal Battery	-	24 VOLT, Sealed lead-acid.
	-	Up to 24 Ampere Hour
Internal Charger (+VB)	-	27.3 VDC (nominal at 20 °C) Regulated
Non Battery Backed Supply	-	27.9 VDC (nominal at 20 °C) (+VNB)
Temperature Compensation	-	-36mV per Degree C
Supervision	-	Charger High/Low & Battery Low/Fail Battery Disconnect (V2.31 onwards)
Battery Test	-	1.2 Amp load (standard)
Maximum Load	-	2.5 Amps with FP0474 (up to 7.5A with slaves)
	-	6.0 Amps with PSU2406F
	-	12.0 Amps with PSU2412F
Operating Voltage	-	21.1 to 28.2 VDC
Quiescent Panel Current	-	160mA (FIP)
AC Secondary Fuse F1	-	5.0 Amp (FP0474)
+VB Fuse F2	-	1.6 Amp (FP0474)
Bell Fuse F3	-	1.6 Amp (FP0474)
+VNB Fuse F4	-	1.6 Amp (FP0474)
Operating Temperature	-	-5 °C to 45 °C
Humidity	-	10% to 90% RH non-condensing
<u>ADR</u>		
Zone Circuit Voltage	-	20 VDC nominal
Circuit Alarm Current	-	5 to 8.6mA (FP0472 ADR)
	-	9.1 to 12.0mA (FP0523 ADR & FP0755 ADR-M)
Alarm LED Boost	-	20 VDC at 40 ms pulse via 470 Ohm (FP0472)
<u>IOR</u>		
Inputs	-	Clean contact, voltage-free, supervised.
Outputs	-	Open collector, pull-down, 100mA @ 30V.

3.4 INDICATORS

Zone LEDs (Optional)	- Red:	ALARM
	- Amber:	FAULT, ISOLATE
System LEDs	- Green:	MAINS ON
	- Red:	MASTER ALARM
	- Amber:	SYSTEM FAULT, BELL ISOLATE,SYSTEM TEST, ANCILLARY ISOLATE, CHARGER/ BATTERY FLT.
Sounder	- Keypress, & key error - Pulsing ALARM / Steady FAULT - Slow Pulsing OFF-NORMAL condition with door closed.	
Diagnostic LEDs (Main Board / Amber)	- Watchdog - Display Fault - RZDU Fault - Loop Fault - Software Fault	
Responders	- Status LED - MPR/AAR Analogue Loop Status LEDs	
New Zealand Mode Indicators	- Red :	FIRE
	- Amber :	DEFECT
	- Green :	NORMAL

3.5 KEYPAD CONTROLS

Keypad Type	- 30 key keypad plus 2 line by 40 character LCD
Zone Functions	- Alarm and Fault Test - Isolate - Reset - Auto-Reset Test Mode - Recalls
Ancillary Functions	- Test, Isolate, Reset
Point Functions	- Reset History/Tracking - Recalls - Set sensitivity - Isolate
System Functions	- Battery Test, Lamp Test - System Test (RZDU Test) - System Fault Reset - Bell Test, Bell Isolate (FIP only) - System Fault/History Recalls - Set time and date - Set LCD password
Brigade Functions	- Acknowledge alarms - Reset acknowledged zones in alarm - Isolate acknowledged zones in alarm - Brigade Test
New Zealand Mode (External Keyswitches)	- Trial Evacuation - Silence Alarms

4 INTERPRETING THE DISPLAY

4.1 RESPONDING TO ALARMS

WHEN ANY ZONE RED "ALM" LED INDICATOR, OR THE FFCIF ALARM LED INDICATOR IS FLASHING, OR THE LCD IS DISPLAYING AN UNACKNOWLEDGED ALARM, PERFORM THE FOLLOWING OPERATIONS:

STEP 1 **DO NOT PRESS "ACK", "RESET" OR "ISOLATE" KEYS ON THE PANEL** until the Fire Brigade arrives. The "NEXT" key can be pressed to view the next zone alarm in the list. If the "NEXT" key is pressed, the internal sounder will silence.

STEP 2 INVESTIGATE THE ALARM (if possible by Fire Safety Crew), and implement appropriate fire control and extinguishing measures.
The **FIRE SEARCH AREA** will be indicated by a red flashing "ALM" LED indicator(s) adjacent to the location description of the alarm zone(s) or by the zone text displayed on the LCD.

STEP 3 Evacuate the areas if necessary.

STEP 4 **ADVISE THE FIRE CONTROL STATION** of both fires and false alarms.

STEP 5 **KEEP A MEMBER OF THE FIRE SAFETY CREW ON STANDBY** to direct fire fighters to the source(s) of alarm and inform them of measures already taken.

STEP 6 **RECORD ALL EVENTS IN THE LOG BOOK PROVIDED.**

** PLEASE NOTE **

The above procedure should only be executed by a trained fire officer, and may need to be modified in accordance with any special conditions applying to your F4000 FIP installation.

4.2 DEALING WITH FAULTS

4.2.1 WHAT IS A FAULT?

A fault is any situation which prevents the panel from correctly performing its functions. Possible faults include defects in external wiring or power feed to the detectors, faulty detectors, component failures, faulty charger and low battery voltage.

In normal operation the only lit LED indicator should be the green "MAINS ON". For New Zealand mode F4000 panels the green "NORMAL" LED indicator should also be ON. If other indicators are active, or the "NORMAL" LED is OFF or flashing, this should be reported and promptly investigated.

4.2.2 RESPONDING TO FAULT SIGNALS

If a fault occurs, the fault sounder will operate (steady tone) unless it is configured to not turn on. If a zone fault exists, the FFCIF "FAULT" LED will be ON. If a system fault exists, the "SYSTEM FAULT" LED will be ON. If a Battery/Charger fault exists, the "CHGR/BATT FAULT" LED will be ON or FLASHING.

If the LCD keypad is at the "base display", the fault action text programmed by the installer will be displayed.

The "CLEAR" key or "ACK" key may be pressed in order to silence the panel's fault sounder until a service technician arrives. When the sounder is silenced, any fault action text display will be cleared also.

If a fault or other off-normal condition exists, the LCD will display the number of Alarms, Faults, Isolates and Other off-normal conditions. Note that the totals take a few seconds to adjust when the number of off-normal states increases or decreases.

To determine the source of the fault conditions, use the following keypad commands:

Zone Status Searches command for zone faults	(refer Section 7.6.3)
Recall System Faults command	(refer Section 6.6)
Recall History command	(refer Section 6.8)
Point Status Searches command	(refer Section 8.1.5)

Note that the Recall Zone Searches will show all zones that have faults, regardless of the Isolate status of the zone. The Recall History command can help to determine the sequence of fault conditions as the events are ordered chronologically.

Once the source of the fault has been determined, apply the basic trouble-shooting guidelines described in Chapter 10, then call your maintenance company.

NOTES: (a) Subsequent faults on the system will operate the fault sounder again.

(b) RECORD ALL EVENTS IN THE LOG BOOK PROVIDED.

4.3 SYSTEM INDICATORS

NOTE: In the following sections the following abbreviations are used to describe the LED indications:

OFF	=	LED unlit.
SF	=	LED flashing slowly (every 2 seconds).
F	=	LED flashing (every half a second).
RF	=	LED flashing rapidly (10 times per second).
ON	=	LED on steady.

4.3.1 "ALARM" LED INDICATOR

A Red indicator interpreted as:

(a) OFF The normal state

(b) ON One or more zones are in alarm. This is regardless of whether the zone is isolated or de-isolated. If the FFCIF is configured to be MAF alarms, only MAF zones will cause the LED to turn on. If it is configured for All Alarms then any zone in alarm will turn the LED on.

(c) F An unacknowledged alarm event is present in the FFCIF alarm list or an unacknowledged MAF alarm exists that was not able to be displayed in the FFCIF list. Zones in alarm will be shown automatically for Type 3 FFCIFs and can be viewed in Type 2 FFCIFs by using the RECALL key.

4.3.2 "FAULT" LED INDICATOR

An Amber indicator interpreted as:

(a) OFF The normal state

(b) ON One or more zones are in fault (regardless of whether the zones are isolated or unisolated). The faults total on the base display will be non-zero.

4.3.3 "ISOLATE" LED INDICATOR

An Amber indicator interpreted as:

(a) OFF The normal state

(b) ON One or more zones is isolated. The "ISOLATE" indicator is affected only by those zones numbered less than or equal to the programmed value of the Isolate Relay Maximum Zone. The isolates total on the base display will be non-zero.

(c) F One or more analogue points are isolated.

4.3.4 "MAINS ON" LED INDICATOR

A Green indicator interpreted as:

(a) ON The normal condition indicating mains power is present

(b) OFF An abnormal condition indicating that the mains supply to the FIP has been interrupted.

Possible reasons are:

i. The MAINS ON/OFF switch on the FIP Power Supply module is turned OFF.

ii. Fuse F1 on 1901-2 Power Supply Printed Circuit board is blown.

iii. The overload protection device on the switchboard has tripped.

iv. FIP Power Supply fault.

4.3.5 "CHGR/BATT FAULT" INDICATOR

An Amber indicator that is interpreted as:

(a) OFF The normal condition, indicating that the FIP's standby battery supply and its associated charger are both normal, if the mains supply is on.

(b) ON The charging circuitry is not working correctly or is wrongly set up. Note that a mains failure is not deemed to be a fault of the charger itself and does not cause the indicator to come on: OR

(c) F The battery is in a poor state of charge. This may be normal, for example after extended operation of the system in a mains failure condition, or may be abnormal, indicating a battery or charger fault: OR;

The battery is disconnected, for V2.31(N) onwards with disconnect monitoring enabled: OR;

Failure of a New Zealand 1 hour battery test will result in this indicator flashing for the remainder of the 1 hour test period: OR;

The previously requested BATTERY TEST has been performed and failed.

Note: A successful BATTERY TEST will return the indicator to its normal OFF state.

After 1 minute maximum of the battery test failing, the indicator will reflect the current state of the battery/charger, which will be Normal or Fault.

(d) RF A manually initiated BATTERY TEST is in progress.

4.3.6 "SYSTEM FAULT" LED INDICATOR

An Amber indicator that is interpreted as:

(a) OFF The normal condition, indicating that the system is fully operational.

(b) ON Indicates that a system fault (as opposed to a zone fault) has been detected.

The fault may either be detected spontaneously, or as a result of a manually or automatically initiated SYSTEM TEST.

Carry out a System Fault Recall (refer Section 6.6) to determine if the fault is local, or at a remote panel on a network. If the fault is on a remote panel it may be necessary to carry out a System Fault Recall at that panel to determine the exact cause of the fault.

Note: More detailed diagnostics are only available via an event logging printer or programming terminal, or by reviewing the history log using the LCD keypad.

(c) SF The database is being downloaded to an Analogue Addressable Responder (AAR) or Multi-Protocol Responder (MPR). Only when this is complete is the system fully operational.

4.3.7 "BELLS ISOLATED" LED INDICATOR

An Amber indicator that is interpreted as:

(a) OFF Indicates that the alarm bells are currently enabled i.e. will sound in the event of an alarm.

(b) ON Indicates that the alarm bells are currently locally isolated, i.e. will NOT sound in the event of an alarm. Usually this is only used for test purposes.

(c) SF Indicates that the bells have been silenced due to the activation of the silence alarms switch at an RZDU or another networked FIP (New Zealand mode), or as a result of another networked FIP having its bells isolated (if this feature is enabled).

(d) F Indicates that the bells have been silenced due to the activation of the local external silence alarms switch at the FIP (New Zealand mode).

4.3.8 "ANCILLARY ISOLATED" LED INDICATOR

An Amber indicator that is interpreted as:

(a) OFF Indicates that ACZ 0 is enabled, and will operate the ancillary relay (if it is controlled by ACZ 0) according to the programmed control strategy.

(b) ON Indicates that ACZ 0 is isolated, i.e. will NOT operate the ancillary relay (if it is controlled by ACZ 0).3

4.3.9 "NORMAL" LED INDICATOR (NZ PANELS ONLY)

A Green indicator interpreted as:

(a) ON The normal state

(b) F The F4000 is Normal, but the mains supply is off.

(c) OFF An un-isolated alarm or fault condition exists. In this case the appropriate FIRE or DEFECT indicator will be on flashing,

or

An abnormal condition exists, e.g. Processing Stopped, System Fault or EEPROM Write Enabled.

4.3.10 "FIRE" LED INDICATOR (NZ PANELS ONLY)

A Red indicator interpreted as:

(a) OFF The normal state

(b) F One or more un-isolated MAF zones is in alarm

Master Alarm relay is activated, due to zone alarms or a Latched Battery Very Low (NZ mode).

4.3.11 "DEFECT" LED INDICATOR (NZ PANELS ONLY)

An Amber indicator interpreted as:

(a) OFF The normal state

(b) F One or more un-isolated MAF zones is in Fault

A communications fault exists

The External Silence Alarms input is active at the FIP or an RZDU.

Battery low during test

Internal test failure

Processing has been disabled

4.4 ZONE INDICATORS

NOTE: In the following sections the following abbreviations are used to describe the LED indications:

OFF	=	LED unlit.
SF	=	LED flashing slowly (every 2 seconds).
F	=	LED flashing (every half a second).
RF	=	LED flashing rapidly (10 times per second).
ON	=	LED on steady.

4.4.1 ZONE ALARM ("ALM") LED INDICATOR

A RED indicator per zone that is interpreted as:

(a) OFF For Alarm Zone; The normal, non-alarm state

For Ancillary Zone; The normal, non operated state.

(b) ON For Alarm Zone; Indicates the alarm condition has been acknowledged and if the zone is non-latching that the alarm condition still exists.

For Ancillary Zone; Indicates that the Ancillary Control Zone has been activated.

(c) F For Alarm Zone; Indicates a new, yet to be acknowledged, alarm has developed or failure of self test e.g. unexpected alarm in the zone.

4.4.2 ZONE FAULT ("FLT") LED INDICATOR

An Amber indicator per zone that is interpreted as:

(a) OFF The normal state.

(b) ON Indicates a FAULT condition has developed in that zone.
For Alarm Zone; A detector line fault
For Ancillary Zone; An Ancillary Supervision fault.

(c) F Encountered during a SYSTEM TEST, to indicate that the particular zone failed its test sequence, or detected an unexpected alarm or fault.

NOTE: For New Zealand mode FIPs, zone defects (faults) are always non-latching, but the LED indicators are always latching. Thus, if the defect condition goes away, the zone status will be normal, but the defect indicator will remain ON until the zone is RESET.

4.4.3 ZONE ISOLATED ("ISO") LED INDICATOR

An Amber indicator per zone that is interpreted as:

(a) OFF The normal state; indicates that the zone is not isolated and that any alarm or fault conditions detected on that zone will generate Brigade signals, bell operation, and ancillary device operation as configured for that zone.

(b) ON Indicates that the zone is isolated. Alarm and fault conditions will still be displayed but will not initiate any control or annunciation functions.

(c) F Indicates that the zone is in "AUTO-RESET" mode.

4.5 LED PHASING

For FIPs with a large number of display boards, the power requirements can become excessive if too many of the LEDs are on. To reduce the power requirements, the FIP is able to "phase" the display boards.

The FIP calculates the number of LEDs on steady or flashing for all Display boards, but excludes Relay Driver boards. If this number rises above 255, then phasing starts. If it then falls below 249, phasing stops.

If phasing has started, then only 6 boards display their data at one time. All other LEDs on Display boards are turned off. Every second, one board is turned off, and another is enabled to turn on its LEDs. In this way, the 6 display board "window" is shifted around all of the display boards. If phasing is not enabled, then all boards show their data.

TIME	BOARD NUMBER							
	1	2	3	4	5	6	7	8
1		X	X	X	X	X	X	
2			X	X	X	X	X	X
3	X			X	X	X	X	X
4	X	X			X	X	X	X
5	X	X	X			X	X	X
6	X	X	X	X			X	X
7	X	X	X	X	X			X
8	X	X	X	X	X			

X = BOARD DISPLAYING DATA
FIG 4.1 PHASING OF DISPLAY BOARDS

LED PHASING (CONTINUED)

At any time during phasing, a display board configured to be a Relay Driver board will never be turned off. When it is the Relay Driver board's time to be turned off, it will continue to display it's data.

TIME	BOARD NUMBER							
	1	2	3	4	5	6	7	8
1			X	#	X	X	X	X
2	X			#	X	X	X	X
3	X	X		#	X	X	X	X
4	X	X	X	#		X	X	X
5	X	X	X	#			X	X
6	X	X	X	#	X			X
7	X	X	X	#	X	X		
8		X	X	#	X	X	X	

X = BOARD DISPLAYING DATA
# = RELAY DRIVER ALWAYS DISPLAYING DATA
FIG 4.2 PHASING OF DISPLAY BOARDS

4.6 CONTROL OF FIP BY MULTIPLE OPERATORS

For a standalone F4000 FIP, only one operator can have control over the FIP as there is only one operator interface (the keyboard and LCD).

When an F4000 FIP is connected to:
- RZDUs
- RDUs
- Colour Graphics Displays
- Remote operator via the programming terminal, or
- Other panels via the Panel-Link network,

there may be more than one operator controlling the FIP. Ie. multiple operators could be trying to reset, isolate, test, etc, the zones or other controllable items at the same time.

Depending on the system programming, alarms in the FFCIF alarm list may be acknowledged, reset or isolated, from any of the operator interface points.

Thus alarms in the FFCIF list may disappear from the LCD because another operator has reset the zones in alarm from, for example, a colour graphics system.

Also, the internal sounder may silence as a result of receiving and/or actioning a remote operator’s command.

As of V2.35, the single keypad and LCD interface can be operated simultaneously by up to 3 users at a time:

- An operator physically at the FIP keypad/LCD.
- A remote operator connected via the programming terminal.
- A remote operator connected via the Panel-link network.

The physical LCD display will change in response to the actions of the remote operator.

5 OPERATING INSTRUCTIONS - BRIGADE FUNCTIONS

5.1 INTRODUCTION TO BRIGADE FUNCTIONS

5.1.1 GENERAL OPERATION & DISPLAY

When an alarms occurs, the FIP takes over the keypad and LCD to display the alarm. The keys that can be used are limited to those within the Fire Fighters Control and Indicating Facility (FFCIF), the "PREV" key and the "CLEAR" key. The FFCIF is the area of the keypad within the red border, as shown in Figure 5.1.

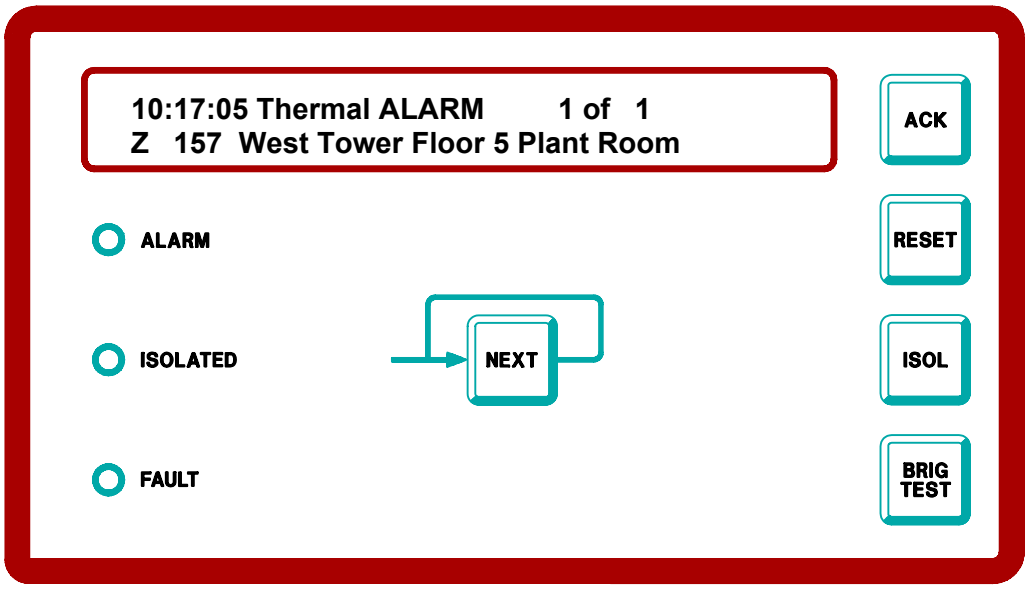


FIGURE 5.1
EXAMPLE FIRE FIGHTER'S CONTROL & INDICATING FACILITY ALARM DISPLAY

The FFCIF is programmed to operate in one of two modes:

(i) FFCIF Type 3 Mode - Each zone alarm is displayed on the LCD, and must be individually acknowledged by pressing the ACK key when the alarm is displayed. All acknowledged alarms can be reset or isolated by pressing the RESET and ISOLATE keys respectively.

All alarms must be acknowledged before the FFCIF can be exited.

(ii) FFCIF Type 2 Mode - All zone alarms are silenced/acknowledged, reset and isolated using common controls.

When an alarm occurs the LCD displays a screen indicating that alarms have occurred and that they can be viewed by pressing RECALL.

From this screen all alarms can be silenced/acknowledged by pressing "ACK", reset by pressing "RESET" or isolated by pressing "ISOLATE". If the alarms are recalled then the FFCIF enters Type 3 Mode and the ISOLATE and RESET keys only operate on individually acknowledged alarms. Pressing RECALL reverts the LCD display to the Type 2 screen.

GENERAL OPERATION & DISPLAY (CONTINUED)

Once all alarms have been acknowledged, and then reset or isolated, the FIP restores the display and keypad to the exact state before the alarm occurred. Consequently, partly entered commands or numbers can be finished, or any recalls that were being done are re-started.

5.1.2 FFCIF TYPE 3 OPERATION

When the FIP is displaying an alarm using an FFCIF in Type 3 Mode, the LCD displays the following information:

(i) The time at which the alarm occurred, or a preview of the cause of the alarm (programmable).
(ii) The zone alarm type.
(iii) Whether the alarm is acknowledged or not (Figure 5.1 shows an unacknowledged alarm).
(iv) The total number of alarms and the sequence number of the currently displayed alarm.
(v) The zone number and location. The location may be a zone name, a detector name, or a combination of both.

The F4000 FIP maintains a list of alarms in the order in which they occurred. In the absence of operator intervention, the LCD display will show the first alarm. All alarms in the list can be viewed, one by one, by pressing the "NEXT" or "PREV" keys.

Each alarm can be individually acknowledged when it is displayed by pressing the "ACK" key. The text "ACKD" appears on the display whenever an acknowledged alarm is viewed.

Once an alarm has been acknowledged, it can be removed from the alarms list by:

(i) Pressing the "RESET" key - all acknowledged alarms are RESET, and removed from the list; or

(ii) Pressing the "ISOLATE" key - all acknowledged alarms are ISOLATED, and removed from the list; or

(iii) The alarm condition being cleared from the detector on a non-latching zone.

5.1.3 FFCIF TYPE 2 OPERATION

When the FIP has been programmed for FFCIF Type 2 mode, the LCD displays a message that indicates the global operations that can be performed. Pressing the ACK, RESET or ISOL keys will silence, reset and isolate respectively, all un-isolated zones in alarm (irrespective of their acknowledgement status).

The FIP still maintains a list of alarms as for FFCIF Type 3 operation, and these can be viewed by pressing the RECALL key. The LCD then operates in FFCIF Type 3 mode, i.e. it allows individual acknowledgement, reset or isolation of alarms. Pressing the RECALL key allows an operator to return to the FFCIF Type 2 mode of operation.

REMINDER: In Type 2 operation, alarms do not have to be acknowledged before being RESET or ISOLATED.

NOTE: In Type 2 operation, pressing the ACK key will silence the buzzer and mark all events in the FFCIF list as "ACKD", however, the zones will NOT be silenced, i.e. any Alarm LEDs for the zones will remain flashing.

5.2 SILENCING THE INTERNAL SOUNDER

5.2.1 FUNCTION

In FF mode (displaying an alarm) pressing any key in the FF area (except the Brigade Test key) or the Prev key will silence the alarm or fault sounder. Thus to silence the buzzer in FF mode it is safest to use the NEXT or PREV keys, and use the opposite key to step back to the original alarm if there are multiple alarms present.

If the panel is not in FF mode then pressing any key will silence the alarm, fault, or test fail sounder.

Note: The alarm bells are separately silenced by the Bells Isolate key.

5.2.2 OPERATING SEQUENCE

Press "CLEAR" key once.

- the internal sounder silences.

NOTE:

If a key sequence was being entered, it may be necessary to re-enter number information or the last command, as the CLEAR key will, in addition to silencing the buzzer, either step back through the menu or clear any number entry sequence that has started.

If all zone alarms are acknowledged, pressing the CLEAR key will result in the LCD exiting FFCIF mode. It can be re-started by entering the Recall Alarm List command.

Any fault action text displayed as a result of the buzzer turning ON for a fault will be automatically cleared by silencing the fault buzzer.

The sounder may also be silenced on receiving a remote operator command, depending on the system programming and configuration.

5.3 ACKNOWLEDGE ZONES IN ALARM

5.3.1 FUNCTION

In "FFCIF mode", pressing the "ACK" key performs the following functions:

(a) The displayed alarm is acknowledged.

(b) The pulsing alarm sounder is silenced.

5.3.2 OPERATING SEQUENCE

Press "ACK" key once:

- The flashing red "ALM" LED indicator for the zone goes steady (ZONE ACKNOWLEDGED).
- Sounder (if any) will be silenced.
- LCD displays "ACKD" for the currently displayed alarm.
- If there are no more unacknowledged alarms in the system, the ALARM LED goes steady.

NOTES:

(a) Subsequent non-isolated zone "ALARMS" or "FAULTS" on the system will re-operate the indications, and sounder, as appropriate.

(b) Even if an unsilenced FAULT condition exists, the sounder will be silenced.

However, the FAULT LED will be ON, indicating the presence of a zone fault in the system.

(c) If the LCD is in FFCIF Type 2 mode, zone alarms are NOT acknowledged and silenced. The buzzer will silence and the alarm in the FFCIF list will be marked as "ACKD". However, the Zone Alarm LED will remain flashing.

5.4 RESET ACKNOWLEDGED ZONES IN ALARM

5.4.1 FUNCTION

In "FFCIF mode", pressing the "RESET" key performs the following functions for all zones in the alarm list that have been acknowledged:

(a) RESETS all circuits mapped to the acknowledged zone(s).
(b) Silences any alarm or fault sounder.
(c) Aborts Zone Test on any acknowledged zone under test.
(d) If no more un-isolated alarms exist, the bells will turn OFF, if they were ON.
(e) The acknowledged zone alarms are removed from the alarm list.

5.4.2 OPERATING SEQUENCE

Press "RESET" key once:

- LCD displays "Resetting acknowledged alarms".
- All acknowledged zones in the alarm list will be reset.
- All acknowledged (steady) red alarm indicators will be turned OFF.
- Local Bells, if any, will be silenced if no more un-isolated zones are in alarm.
- Sounder will be silenced.

NOTES:

(a) If the alarm condition on the zone circuits has not been removed, then the zone alarm indicators and Local Bells will be re-activated (if not isolated), and a new zone alarm will be put into the alarm list.

(b) Pressing "RESET" in the "FFCIF mode" does not affect Zone or Ancillary Zone fault indications. Refer to the "Zone / Ancillary Reset" section in Chapter 7; "Operating Instructions - Zone Functions".

(c) Pressing "RESET" in the "FFCIF mode" has no affect on isolated zones or zones in "AUTO-RESET" mode, as they are unlikely to be in the alarm list.

(d) If a reset command is already in progress, the LCD will display "Cannot reset alarms at this time". Wait until the original reset has completed and try again.

(e) If the LCD is in FFCIF Type 2 Mode, all alarms will be automatically acknowledged and then reset, i.e. it is not necessary that the zone(s) be previously acknowledged.

5.5 ISOLATE ACKNOWLEDGED ZONES IN ALARM

5.5.1 FUNCTION

In "FFCIF mode", pressing the "ISOLATE" key performs the following functions for all zones in the alarm list that have been acknowledged:

(a) ISOLATES all acknowledged zones in the alarm list.
(b) Silences any Internal sounder condition.
(c) If all zone alarms are isolated, ie there are no unacknowledged alarms, then the Local Bells will turn OFF.
(d) The acknowledged zone alarms are removed from the alarm list.

5.5.2 OPERATING SEQUENCE

Press "ISO" key once:

- The acknowledged zones in the alarm list will be isolated - shown by the corresponding amber "ISO" LED indicator turning ON.
- The Local bells (if any) will be silenced so long as all alarms are isolated, ie there are no unacknowledged alarms.
- The Sounder will be silenced.

NOTES:

(a) Subsequent non-isolated zone ALARMS on the system will re-operate the alarm indications, alarm sounder and local bells.

(b) Subsequent non-isolated zone FAULTS on the system will operate the fault indication and steady fault sounder.

(c) To DE-ISOLATE alarm zones, FFCIF mode must be exited, and the zone selected for de-isolation. Refer to the "Exiting FFCIF mode" section in this chapter, and the "Zone Isolating / De-Isolating" section in Chapter 7 "Operating Instructions - Zone Functions".

(d) If the LCD is in FFCIF Type 2 mode, all alarms will be automatically acknowledged and then isolated, i.e. it is not necessary that the zone(s) be previously acknowledged.

5.6 ISOLATING/DE-ISOLATING BELLS

5.6.1 FUNCTION

The isolate status of the bells can be changed at any time by pressing the "BELL ISO" key. The status of the Bells isolation is shown on the "BELLS ISOLATED" LED as per Section 4.3.7. If the LED is on steady, slow flashing or 2Hz flashing, the bells will not sound. If the LED is OFF the bells will sound when an un-isolated alarm is present.

Isolating the bells can serve as a method to silence the bells whilst un-isolated alarms still exist.

De-isolating the bells allows the bells to turn on for subsequent alarms occurring, and can serve to immediately turn the bells on again if any un-isolated zone alarm condition exists.

For New Zealand mode F4000 FIPs, the Bells Isolate LED flashes if a Silence Alarms keyswitch has been turned on at the FIP, (2Hz flash), or at any RZDU or Networked FIP (slow flash). Pressing the "BELLS ISO" key will change the isolate state stored within the FIP, but the Bells Isolated LED will remain slow or 2Hz flashing until the Silence Alarms keyswitch is turned off. At that time, the "BELLS ISOLATED" LED will turn OFF if the bells are not isolated by the keypad, or ON if the bells are isolated by the keypad.

In Australian or New Zealand network systems, isolating the bells on the local FIP may result in the bells on other FIPs being silenced, depending on how the system has been configured.

5.6.2 OPERATING SEQUENCE

Press the "BELLS ISO" key once:

- If the bells were un-isolated:
- The BELLS ISOLATE LED turns ON.
- The bells, if ON, turn OFF.

- If the bells were isolated:
- The BELLS ISOLATE LED turns OFF.
- If any un-isolated alarm condition exists the bells turn ON.

NOTE:

If any subsequent alarm occurs, the bells will turn ON only if the bells are un-isolated, or for New Zealand mode FIPs if the bells are un-isolated and are not silenced.

5.7 DISPLAYING THE ALARM CAUSE

5.7.1 FUNCTION

In "FFCIF mode", the information for the zone in alarm is normally displayed. However, it can be useful to know which circuit/point caused the alarm.

The LCD displays this information when the operator presses and holds the "POINT" key. The time that the alarm occurred at and the alarm type are replaced by the circuit/point that caused the alarm.

5.7.2 OPERATING SEQUENCE

To display the circuit/point that caused the alarm displayed, press and hold the "POINT" key.

- The alarm time and type are replaced by the circuit/point that caused the zone to go into alarm.

To restore the alarm display, release the "POINT" key.

- The alarm time and type are re-displayed.

NOTES: If the LCD is in FFCIF Type 2 mode, this keypress is invalid.

The FIP may be programmed to show a preview of the cause of the alarm on the main alarm display instead of the alarm time. If this feature has been enabled, when the "POINT" key is pressed the alarm time is displayed along with the full alarm cause information.

F4000 V2.31 and later can be programmed to update the alarm cause text whenever a new alarm cause is detected. They can also be programmed to reannunciate a zone alarm when a new cause is received, i.e. unacknowledge a previously acknowledged alarm, activate the alarm sounder, and make the Master Alarm LED flash.

5.8 EXITING FFCIF MODE

5.8.1 FUNCTION

While in FFCIF mode, access to all other functions and displays is prevented. On occasion it may be necessary to de-isolate a zone or perform some other function. To do so, FFCIF mode must be exited.

FFCIF mode can be exited only when ALL alarms in the list have been acknowledged/silenced.

When FFCIF mode is exited, the LCD reverts to the display it had before the alarms occurred. At that stage, the required functions can be performed.

5.8.2 OPERATING SEQUENCE

Press the "CLEAR" key once:

- If all alarms are acknowledged, FFCIF mode is exited and the LCD reverts to the display state that was showing before the alarms occurred.
- If any alarms are NOT acknowledged, the sounder will produce an error tone, and FFCIF mode will not be exited. It is necessary to acknowledge all alarms before FFCIF mode can be exited.

NOTE: To re-enter FFCIF mode to view the list of alarms, use the Recall Alarm List command sequence. Refer 5.9 Recalling the Alarm List.

5.9 RECALLING THE ALARM LIST

5.9.1 FUNCTION

It is possible for there to be un-isolated alarms present in the system, but the display is NOT in FFCIF mode, for example, the operator has exited the FFCIF to perform recall functions.

The list of alarms can be recalled, and thus put the display into FFCIF mode.

5.9.2 OPERATING SEQUENCE

Press the "CLEAR" key until any base or information recall display is shown.

Then press:

NOTE: If no un-isolated alarms exist, the LCD will briefly display "No more events in alarm list", and then revert to the base display.

5.10 BRIGADE TEST

5.10.1 FUNCTION

The brigade test function produces an internal alarm condition which is signalled to the brigade and the FFCIF Alarm LED turns on. Brigade Test may control ancillary relays if programmed to do so and the ancillaries are not isolated.

5.10.2 OPERATING SEQUENCE

Press and hold the "BRIG TEST" key for at least 2 seconds:

- The MAF alarm relay will activate, if un-isolated (ie not SYSTEM TESTING).
- Any un-isolated ancillary zones or outputs controlled by Brigade Test will activate.

Release the BRIG TEST key. After a short period:

- The MAF alarm relay will de-activate.
- Any ancillary zones or outputs activated by the brigade test will de-activate.

NOTE: The brigade alarm feature of the BRIG TEST key can be disabled via system programming. If so disabled, pressing the BRIG TEST key will not result in an alarm signal to the brigade, but controlled ancillaries will still operate unless isolated.

The Brigade Test function at an F4000 may also be initiated from an RZDU, if it has been programmed to do so.

6 OPERATING INSTRUCTIONS - SYSTEM FUNCTIONS

6.1 BATTERY TEST

6.1.1 FUNCTION

To initiate a test on the standby battery supply by applying a test load for one minute.

6.1.2 OPERATING SEQUENCE (LOCAL PANEL)

From any information display or base display press:

- The LCD displays "Testing battery. Press ACK to stop".
- The "CHGR/BATT FAULT" indicator turns ON rapid flashing to indicate a battery test is in progress.

TO STOP THE BATTERY TEST WHEN RUNNING

- Press the "ACK" key.

IF THE TEST PASSES

- If after application of the test load for one minute, the battery voltage is still within specification, then the test will terminate and the LED indicator will turn OFF.
- The LCD displays "Battery test passed. Press ACK key".
- Press the "ACK" key to complete the test, and the LCD will revert to its previous display.

IF THE TEST FAILS

- If during the test a battery low is detected, the test will terminate and the "CHGR/BATT FAULT" LED indicator will flash.
- The LCD displays "Battery test failed. Press ACK key".
- Press the "ACK" key to clear the display and flashing "CHGR/BATT FLT" LED indicator.

6.1.3 OPERATING SEQUENCE – REMOTE PANEL

A prompt will be given requesting whether the local panel or a remote panel should be tested. For the remote panel option a further prompt will be given for the SID of that panel. Enter the SID of the remote panel to be tested. Then press:

To send the command to the remote panel.

6.1.4 NOTES

(a) The "CHGR/BATT FLT" LED indicator will flash for the rest of the 1 minute test period if the battery test fails or until the test failure is acknowledged.

(b) Pressing the "ACK" key will turn OFF the "CHGR/BATT FLT" LED indicator if it is flashing, and clear the test fail message on the LCD.

(c) If the battery test failed, perform another "Battery Test" after 24 hours. If the battery test fails again please call your service company.

(d) It is not possible to initiate a Battery Test until FOUR (4) minutes after the end of a previously passed battery test. A KEY ERROR tone will be sounded, and the LCD will display "Cannot start battery test at present".

(e) There is a 1:4 "Failure to Next Test" inhibit time ratio.
For example: If the test fails after 30 seconds, it is not possible to initiate another Battery Test until after 2 minutes (4 x 30 seconds).

(f) Pressing the "ACK" key at any time terminates the Battery Test.

(g) For New Zealand mode FIPs, no test load is applied to the battery. The FIP itself is the only required load.

(h) A New Zealand mode FIP will initiate an automatic battery test at the Autotest Begin time every day except Saturday, Sunday and for the user configured dates.

The test is applied for 1 hour and indicates as “Battery Testing” on the LCD. Any test failure indication on the "CHGR/BATT FLT" LED indicator will last for the remainder of the 1 hour test period, unless it is cleared by executing a SYSTEM FAULTS RESET.

During automatic battery test failure, the FIP will signal DEFECT (FAULT) to the brigade. An RZDU will signal battery low to the FIP, for a test failure.

(i) F4000 V2.31(N) or later FIPs can be programmed for battery disconnect monitoring. If enabled, a battery test is briefly applied every 15 to 63 seconds (depending on the programmed setting) to determine whether the battery is connected, i.e. it can supply power to the system.

6.2 BELL TEST

6.2.1 FUNCTION

To operate the Bell Output for a period of five (5) seconds.

6.2.2 OPERATING SEQUENCE

From any information display or base display press:

Note: For a networked panel after pressing SYSTEM a prompt will be given requesting whether the local panel or a remote panel should be tested. For the remote panel option a further prompt will be given for the SID of the remote panel. Enter the SID of the remote panel to be tested.

Bell test can also be started by the TEST SYSTEM BELLS command sequence:

- The LCD briefly displays "Bells Test Started".
- The Bell Output is turned on for 5 seconds.

6.2.3 NOTES

(a) The Local Bell output will be turned on and the BEL token in the output logic will be TRUE for the 5 second "BELL TEST", even if the BELLS are ISOLATED, or externally silenced (New Zealand mode).

6.3 BELL ISOLATE or DE-ISOLATE

6.3.1 FUNCTIONS

To change the isolation state of the alarm bells, either from de-isolated to isolated, during testing, or vice-versa on completion of tests.

6.3.2 OPERATING SEQUENCE – LOCAL PANEL

To Isolate or De-Isolate the bells at any time, press:

- If the amber "BELLS ISOLATED" LED indicator was OFF, it will now be turned ON, to indicate the alarm bells are isolated.
- If the amber "BELLS ISOLATED" LED indicator was ON, it will now be turned OFF, to indicate the alarm bells are de-isolated.
- When the Bells are isolated, New Zealand mode FIPs will turn off the "NORMAL" indicator, and will slow pulse their internal sounder if the door is closed.
- Note that the bells can also be isolated via the SYSTEM ISOLATE BELLS or ISOLATE SYSTEM BELLS command sequences.

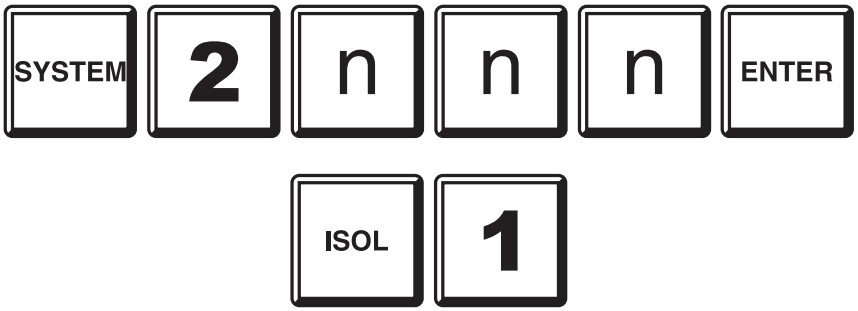
NOTE: On New Zealand mode FIPs it is possible to silence the bells via operation of the external Silence Alarms keyswitch on the FIP, an RDU, or another network F4000. This will cause the "BELLS ISOLATED" LED to flash (2Hz or slow), and a fault (defect) to be signalled to the brigade.

A bell isolate or de-isolate command may also be initiated by an RDU, if this function has been enabled during programming at the RDU.

For network F4000s, isolating the local bells may result in the bells on other FIPs on the system being silenced, depending on how the F4000s have been configured.

6.3.3 OPERATING SEQUENCE – REMOTE PANEL

To Isolate/De-isolate the bells at remote panel nnn, press:



The status of the bells isolation at the remote panel will be given and pressing the ACK key will invert this (e.g. change Isolated to De-isolated).

6.4 LCD/LAMP (LED) TEST

6.4.1 FUNCTION

To momentarily turn all indicators on to visually inspect that they are working correctly, and to test operation of the LCD.

6.4.2 OPERATING SEQUENCE

From any information display or base display, press:

Note: For a networked panel after pressing SYSTEM a prompt will be given requesting whether the local panel or a remote panel should be tested. For the remote panel option a further prompt will be given for the SID of the remote panel. Enter the SID of the remote panel to be tested.

The display test can also be started by the TEST SYSTEM DISPLAYS command sequence.

For testing the LCD:

- a test pattern is displayed, activating all LCD elements on the first line. The "ACK" key must be pressed to continue the test.
- When "ACK" is pressed, the same test pattern is displayed on the second line of the LCD. The "ACK" key must be pressed again to complete the test.

For testing the system status indicators and display boards:

- The internal and external System Status indicators are turned ON.
- Each board of 16 Zone Indicators are then successively turned on and off.
- Visually check that every indicator is turned ON at some stage during this process.
- If any LED indicator does not light when the rest of the board is, please call service.

NOTE: Any boards configured to be Relay Driver Boards will not be tested during the Lamp Test.

On New Zealand mode FIPs a Lamp Test can also be started by momentarily shorting the LAMP TEST- input on the display extender board input to 0V.

F4000 V2.31(N) or later can be programmed to activate the fault or alarm sounder when the system status indicators are being tested.

6.5 SYSTEM TEST

6.5.1 FUNCTION

The System Test checks the integrity of the system hardware and software.

It applies simulated alarm and fault conditions to each circuit to check that the conditions are detected and processed correctly. Analogue addressable smoke detectors and devices that support testing are also tested to verify that an alarm condition can be generated by each device.

6.5.2 OPERATING SEQUENCE

From any information display or base display, press:

Note: For a networked panel after pressing SYSTEM a prompt will be given requesting whether the local panel or a remote panel should be tested. For the remote panel option a further prompt will be given for the SID of the remote panel. Enter the SID of the remote panel to be tested.

The System test can also be started by the TEST SYSTEM SYSTEM command sequence.

- The LCD displays "Testing system. Press ACK to stop". Pressing "ACK" will abort the test.
- The "BELLS ISOLATED" and "ANCIL ISOLATED" LED indicators are turned ON to indicate that the BELLS output and ANCIL outputs have been automatically isolated for the duration of the test.
- The Master Alarm Facility is also automatically isolated, however this is not indicated.
- Consequently, if any un-isolated MAF alarm or fault conditions exist, the MAF will stop signalling these conditions to the brigade for the duration of the test.

6.5.3 TEST OPERATION

The System Test operates as follows:

6.5.3.1 MEMORY TEST:

A test of the EPROM, RAM and EEPROM components of each microprocessor system is initiated.

If this test fails the buzzer sounds its test fail cadence, the SYSTEM FAULT indicator comes ON and the LCD displays a test fail message. Pressing "ACK" silences the buzzer and clears the fail message from the LCD, but the SYSTEM FAULT indicator does not turn OFF until the completion of a successful memory test.

6.5.3.2 FAULT AND ALARM TEST:

The system test then applies "FAULT" and "ALARM" test signals to all enabled responder inputs. The test is deemed complete when all Responders report that their tests have passed.

The test fails either if all Responders do not complete their tests within a certain time, or if at any time any of the tested circuits go into the incorrect state. If a failure is detected, this is annunciated by the test fail cadence on the buzzer, a flashing FLT indicator on the failed zone, and a fail message on the LCD. This suspends the test.

Press "ACK" to silence the buzzer and clear the fail message from the LCD. This aborts the test. The SYSTEM FAULT indicator remains ON and can only be turned off by a successful re-test.

If there is a test failure on a circuit input then the FLT LED indicator for the zone comes on flashing if the applied test alarm or test fault signals were NOT detected; or the ALM and FLT LED indicators come on flashing if there are any unexpected alarms or faults respectively.

The ideal response to a system test is no new zone indicators ON rather than any indicators on flashing, and a "System test passed. Press ACK key" message on the LCD.

If the system includes Analogue Addressable Responders (AARs) or Multiprotocol Responders (MPRs), a successful test can take up to 2.5 minutes, otherwise about 1 minute is required.

6.5.4 TEST ABORT

Pressing the "ACK" key during the test terminates the SYSTEM TEST.

Detection of an ALARM condition which seems unrelated to the applied test alarm (ie possibly a genuine alarm) holds the test at the affected Responder and causes the ALM and FLT indicators to flash for the zone in alarm, along with the FLT indicators for zones mapped to by the circuit under test on the same responder.

However, since it is not established that it is a genuine alarm no MAF/ANCIL/BELL or other mapped outputs will be activated. Pressing the "ACK" key takes the FIP out of test mode, turning off the ALM indicator and buzzer if the alarm is no longer present. The system reverts to normal operation. If the alarm is still present, this will be detected and annunciated in the usual way.

Detection of FAULT conditions which are unrelated to the applied test fault conditions are treated similarly, except that just the fault indicator of the suspect zone, and the zones mapped to by the circuit under test on the same responder, come on flashing.

If the circuit under test is not mapped to a displayed zone, only the Service company can determine the circuit failure from the internal log or by reviewing the history on the LCD.

If the circuit under test is not mapped to a zone at all, then the test is not terminated by a failure but indicated at the end of the test by the buzzer and LCD "Test Fail" message. Again the circuit failure can only be determined from the internal log, or by viewing the history on the LCD.

6.5.5 NOTES

(a) System Test is not possible if any unacknowledged alarm or fault exists; or if an automatic test sequence, battery test, zone test or auto-reset zone test is in progress. ADR S/W earlier than Version V1.04 will fail the test if any circuit is in alarm or fault at the start of the test.

(b) System Test bypasses any programmed time delays.

(c) If there is a test failure the "SYSTEM FAULT" indicator is left ON until a successful test (SYSTEM or AUTOMATIC) is performed. However, this cannot be done until the alarm or fault that terminated the test is cleared. Refer note (a) above.

(d) During Self Test and for a brief time afterwards, the refresh of data to RZDUs is suspended, to ensure that any test failure information is not sent to the RZDUs, and incorrectly interpreted as true ALARM or FAULT conditions.

6.6 RECALL SYSTEM FAULTS

6.6.1 FUNCTION

Allows an operator to view on the LCD the current causes of a "SYSTEM FAULT" indication.

These include problems with the FIP, any Responder or RZDU that could be connected to the FIP, or another panel on a networked system.

6.6.2 OPERATING SEQUENCE

From any information display or base display, press:

The display will pause briefly while the FIP searches for the first system fault. If none is found, a brief message is displayed saying so, and the LCD reverts to the base display.

If a system fault exists, the LCD will display it. To view the next fault, press:

To view the previous fault, press:

6.6.3 NOTES

The search for system faults first tests for any FIP faults, followed by responder and RZDU faults, and finally any Network FIP faults.

The LCD displays shows faults using a "Page" format, where each page is capable of displaying a number of different faults, but only those faults that are actually present are displayed.

There are up to 4 pages of faults for the FIP, one page per responder and RZDU, and up to 3 pages for each FIP on the network.

The display is "real time", and the display updates once per second. Consequently, if a fault is transitory, the display will show and blank the indication as the fault occurs and clears.

If all faults have cleared before the NEXT or PREV key is pressed again, the display will briefly display a message indicating that there are no more system faults, and then it will revert to the base display.

The information that can be displayed for each fault page is as follows:

FIP Page 1

SWFlt	-	A Software Fault was latched.
E2CRC	-	The FIP has detected a bad database.
STstF	-	The System failed its Powerup, Self or Automatic Test.
Brk1	-	No messages received by the FIP on Channel 1.
Brk2	-	No messages received by the FIP on Channel 2.
NoPrc	-	FIP processing has been stopped.
FRsp0	-	At some time, a foreign responder 0 was detected.

FIP Page 2

WDogL	-	The FIP has a latched watchdog indication.
DispF	-	There is a fault with the FIP LED display chain.
ChgrF	-	There is a Charger Fault at the FIP.
LpPwr	-	The FIP has detected an F4000 loop power fault.
BatLo	-	The FIP has a battery low condition.
BatFl	-	The FIP has a battery fail condition.

FIP Page 3	-	NZ Mode FIPs Only
TEvac	-	Trial Evacuation active at FIP or RZDU.
SilAlm	-	Silence Alarms active at FIP or RZDU.
ExtDef	-	FIP External Defect Active.
ExtEvc	-	FIP External Evacuation Defect Active.
LatBVLo	-	FIP has latched a battery very low condition.
Abnml	-	FIP has an abnormal condition, e.g. EEPROM write enabled.

FIP Page 4

NetFlt	-	Network Fault present. Refer 6.6.4.
CmnPtI	-	A point on this FIP is isolated.
BattDis	-	The battery is disconnected.
MainsFl	-	The mains has failed.
DirtyAlert	-	One or more analogue detectors on this FIP are in Dirty Alert.

NOTES (CONTINUED)

Responders	-	On a per Responder Basis
PRly	-	Responder has opened its Power Relay.
Scan	-	FIP is not receiving data from this responder.
Forgn	-	Responder is unconfigured, or more than one of same address.
TypeM	-	Type mismatch between actual responder type and the type stored in the FIP database, or a SS database is being sent to an MPR that cannot process it correctly.
Brk1	-	No messages received by Responder on Channel 1.
Brk2	-	No messages received by Responder on Channel 2.
RyBd	-	Relay Board fault.
L2F	-	AAR or MPR fault e.g. Top Board Fault, Power Line 2 Fault, or device type mismatch.

RZDUs	-	On a per RZDU Basis
Forgn	-	Reply received from an unconfigured RZDU.
BatLo	-	Battery low at RZDU.
DispF	-	Display fault at RZDU.
BatFl	-	Battery fail at RZDU.
Scan	-	FIP is not receiving data from this RZDU.
StstF	-	RZDU failed its self test.
ChgrF	-	Charger fault at RZDU.

Network Panels Page 0

ScanF	-	The Local Panel is not receiving any data from the Remote panel indicated.
LnkIA	-	The Local Panel is not receiving channel A test data from the Remote panel indicated.
LnkIB	-	The Local Panel is not receiving channel B test data from the Remote panel indicated.
SysFlt	-	The Remote Panel has a system fault.
NetFlt	-	The Remote Panel has a network fault.
Stdby	-	The Remote Panel has a standby condition.

Network Panels Page 1

Abnml	-	The Remote Panel has an Abnormal status present.
BellI	-	The Remote Panel's bells are isolated.
TEvac	-	The Remote Panel is asserting Trial Evacuation.
SilAlm	-	The Remote Panel is asserting Silence Alarms (Silence Bells)
BrigT	-	The Remote Panel is asserting Brigade Test.
SysFRcl	-	The Remote Panel has information that should be recalled on its own LCD display using the System Fault recall command.

Network Panels Page 2

CmnPtI	-	A point on this FIP is isolated.
TstFlI	-	The FIP is signalling a test fail condition.
SysTst	-	The remote panel is currently executing a system test.

6.6.4 NETWORKED PANELS

If the local panel detects a network fault (e.g. it fails to receive messages from a remote panel that it is expecting to receive from), or it receives a signal from a remote panel saying that it has a system fault, then NetFlt will be shown.

If the cause of the fault was determined by the local panel (as distinct to receiving the signal from the remote panel) then the actual type of fault will be logged to the printer and the history. If the cause was signalled by the remote panel, then the status will be indicated on one of the pages 0-3 for the remote panel.

If SysFRcl is shown for a remote panel, it may be necessary to carry out a Recall System Fault at that panel itself to determine the exact cause of the fault.

6.7 SYSTEM FAULT RESET

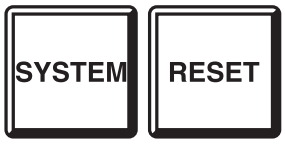
6.7.1 FUNCTION

To reset, if possible, a latched System Fault as shown by the front panel "SYSTEM FAULT" indicator.

The specific cause, or causes, of the "SYSTEM FAULT" indication can be determined by a "RECALL SYSTEM FAULT" command, or sometimes be seen on the internal diagnostic indicators.

6.7.2 OPERATING SEQUENCE

From any information display or base display, press:



Note: For a networked panel after pressing SYSTEM a prompt will be given requesting whether the local panel or a remote panel should be reset. For the remote panel option a further prompt will be given for the SID of the remote panel. Enter the SID of the remote panel to be reset.

System Fault Reset may also be effected by the RESET SYSTEM command sequence.

- The "WATCHDOG", "DISPLAY FAULT", and "SOFTWARE FAULT" LED indicators (on the Main Board) latch, to assist service personnel during trouble shooting.

- If an FIP loop power fault exists, the FIP immediately disconnects power to the loop on line 2 (so long as no other conditions exist that require that power be connected).

  The FIP then tests as to whether the loop fault has cleared or not.

- If a particular fault condition no longer exists, system fault reset clears that fault indicator.

6.7.3 NOTES

(a) System Fault Reset should only be performed by Service Technicians or authorised fire safety personnel.

(b) System Fault Reset should only be performed after a "Recall System Fault" command has been used to determine the cause of the fault and any appropriate service action has been taken.

(c) If the fault is a network fault then it will be cleared irrespective of whether it is still present or has cleared. Thus if any faults still exist they will be re-annunciated soon thereafter.

6.8 RECALL HISTORY

6.8.1 FUNCTION

The FIP keeps a list of the last 900 events in chronological order. The RECALL HISTORY command allows an operator to view the historical list of events stored in the FIP, and to move forwards and backwards through the list. When either end of the list is reached, the LCD automatically shifts to the other end of the list and displays whether the event is the newest or oldest.

6.8.2 OPERATING SEQUENCE

From any information display or base display, press:

The display will show the most recent history event.

To access the event that occurred before the event displayed, press:

If the PREV key is pressed when the event displayed is the oldest event, the LCD will briefly display a message indicating that the event to be displayed is the most recent event and then it displays that event.

To access the event that occurred after the event displayed, press:

If the NEXT key is pressed when the event displayed is the most recent event, the LCD will briefly display a message indicating that the event to be displayed is the oldest event on record, and then displays it.

6.8.3 PRINTER/HISTORY EVENTS

The event printer output and history log for networked F4000s logs only local events, ie. events and alarms from other panels are not logged. A Network Printer that prints network events is available with the Protocol Translation Module (PTM), or Network Display Units (NDU) or Networked F3200 FIPs.

There are, however, a number of additional events that can be produced by a networked F4000. Those events relating to a remote panel are identified by a description of SID XX, where XX is the SID of the panel that caused the event.

The new events are:

(i) NET SCAN FAIL/NORMAL - FAIL: the specified panel failed to communicate on the network due to it being offline or there being a problem with the network cabling; NORMAL:the panel began communicating again.

(ii) NET FOREIGN DEVICE - an unexpected panel is communicating on the Panel Link Network for Link Integrity testing.

(iii) NET COMMAND ACCEPTED - a network command was received from the specified panel and validated for further processing. The events immediately following this event may have been the result of executing the received command.

(iv) NETWORK EVENT QUEUE OVERFLOW - the local F4000 was generating events faster than it could send them onto the network. Some events will have been lost. The lost events may have been recorded on the event printer or in the history log. This event should occur only in cases of extreme network loading, many events occurring on the FIP simultaneously or a network cable fault.

(v) NET MSG DISCARDED - the local F4000 discarded a message that was repeatedly sent to another device on the network that did not acknowledge it. To allow other messages to be sent on the network, the unacknowledged message was discarded. Messages should be discarded only in cases of extreme network loading, if the system addressed does not exist or if it is currently off line, or if network cables are broken.

This event immediately generates a System Fault that will automatically clear itself 30 seconds after the last discard occurred.

Note that discards from SID 0 indicate that an acknowledgement to a broadcast was not received.

6.9 SET SYSTEM TIME

6.9.1 FUNCTION

Allows an operator to set the time in the real-time clock within the FIP.

6.9.2 OPERATING SEQUENCE

To set the time, press:

The current time is displayed. Enter the new time, in 24 hour format. To separate the hours from the minutes, press the POINT key.

E.g. To set the time to 13:52, press:

If the time is in the correct format and is a valid time, the FIP real time clock will be set to the new time. The display reverts to the SET SYSTEM menu, so that other changes can be made, if desired.

6.9.3 NOTES

Due to hardware limitations, the seconds of the real time clock cannot be set via the LCD. Whenever the time is set, the seconds are forced to zero. Consequently, the time should be entered before the next minute occurs, and the "ENTER" key pressed at the start of that minute.

F4000 V2.30 onwards can be programmed for automatic daylight saving adjustment of the real-time clock.

On a network one panel may be set up as the time/date master. Setting the time or date at this panel will result in the new time/date being sent to other panels on the network. The time/date master will also send out the time/date to other panels at 11:30pm each day and on daylight saving changes.

6.10 SET SYSTEM DATE

6.10.1 FUNCTION

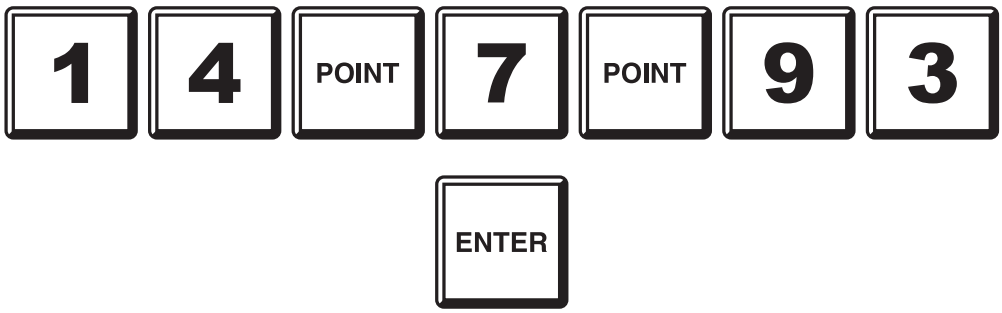
Allows an operator to set the date in the real-time clock within the FIP.

6.10.2 OPERATING SEQUENCE

To set the date, press:

The current date is displayed. Enter the new date. To separate the day, month and year numbers, press the "POINT" key.

E.g. To set the date to 14/07/93, press:



If the date is in the correct format and is a valid date, the FIP real time clock will be set to the new date. The display reverts to the SET SYSTEM menu, so that other changes can be made, if desired.

6.10.3 NOTES

On a network one panel may be set up as the time/date master. Setting the time or date at this panel will result in the new time/date being sent to other panels on the network. The time/date master will also send out the time/date to other panels at 11:30pm each day and on daylight saving changes.

6.11 SET LCD ACCESS PASSWORD

6.11.1 FUNCTION

Allows an operator to change the LCD Access Password. This password, when entered correctly, allows:

(i) Alteration of the password itself.
(ii) Alteration of the sensitivity settings of analogue detectors configured in the system.

6.11.2 OPERATING SEQUENCE

To set the LCD Access Password, press:

The LCD will prompt for the current password. Enter the current password. The LCD will then prompt for the new password, which should be entered. The LCD will then prompt for the new password again, to confirm that the new password was entered correctly the first time.

The FIP will then store away the new password, and re-calculate the database CRC.

The display then reverts to the SET SYSTEM MENU, so that other SET SYSTEM changes can be made, if required.

6.11.3 NOTES

(a) All passwords consist of 0 to 10 numeric digits.

(b) All passwords are echoed with * instead of the actual digits entered.

(c) The CLR key can be pressed to allow re-entry of a password if an operator is not sure of what was previously entered.

(d) The LCD password can also be set by service personnel using the programming terminal.

(e) The password cannot be altered if there is a System, Automatic or Powerup test in progress, if the programming terminal has stopped processing, or if the EEPROM cannot be written to.

6.12 GLOBAL RESET

6.12.1 FUNCTION

To issue an FFCIF Type 2 Global Reset, to reset all un-isolated zones in alarm (if any) and to signal RESET to the output logic.

6.12.2 OPERATING SEQUENCE

To issue a global reset from a base display, other than a Zone or Point Recall, press:

6.12.3 NOTES

(1) This command can be accessed from any base display or data recall display except for the Zone Recall displays.

Press the "CLEAR" key to exit from a Zone or Point Recall display to the base display before entering the Global Reset command.

(2) The Global Reset command will result in all unisolated zones in alarm being reset. This may result in events being removed from the FFCIF Alarm List.

6.13 GLOBAL ISOLATE

6.13.1 FUNCTION

To issue an FFCIF type 2 Global Isolate, to isolate all un-isolated zones in alarm (if any) and to signal ISOLATE to the output logic.

6.13.2 OPERATING SEQUENCE

To issue a global isolate from a base or information recall display, other than a Zone Recall, press:

6.13.3 NOTES

(1) This command can be accessed from any base display or data recall display except for zone recalls.

Press the "CLEAR" key to exit from a Zone Recall display before entering the Global Isolate command.

(2) The Global Isolate command will result in all unisolated zones in alarm being isolated. This may result in events being removed from the FFCIF Alarm List.

6.14 RECALL SYSTEM CRCs

6.14.1 FUNCTION

Allows an operator to view on the LCD the Database CRC and the time and date the database was last changed.

This information can be used as part of an AS1851.8 testing schedule, and to provide for detection of tampering with the system configuration.

6.14.2 OPERATING SEQUENCE

From any information display or base display, press:

The Recall System CRCs display may also be accessed by the SYSTEM RECALL 3 command sequence from the base display.

The LCD will display the database CRC, and the time and date that the database was last altered.

NOTE: Programming terminal database changes, or changing detector sensitivities or the LCD password from the LCD keypad, will change the database and thus the numbers displayed as a part of this recall.

Thus, if the database is changed, the new numbers should be recorded in the log book and the service company advised.

7 OPERATING INSTRUCTIONS - ZONE FUNCTIONS

7.1 ZONE ALARM OR FAULT TEST

7.1.1 FUNCTION

To test the circuit inputs of a selected alarm zone and send test alarm signals to the Brigade. Two tests can be performed:

(a) A true fault simulation test, or
(b) A true alarm simulation test.

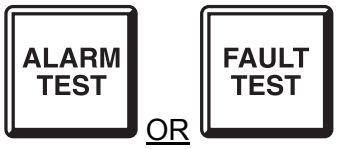
WARNING: This test performs a true zone test, time delays operate, and all outputs operate, including MASTER ALARM OUTPUT, unless the zone is isolated.

Testing a Local Zone is covered in Section 7.1.2 and a Remote Networked Zone is covered in Section 7.1.5.

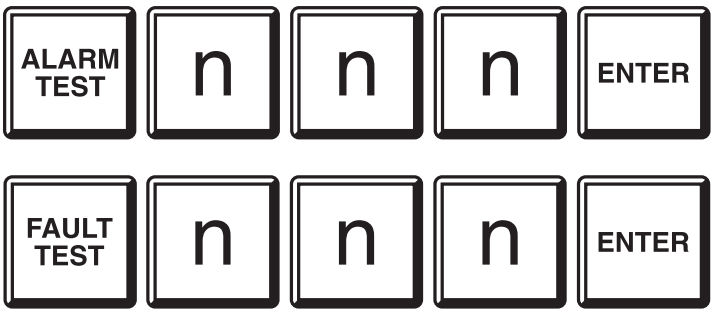
7.1.2 OPERATING SEQUENCE (LOCAL ZONE)

OPTION: To prevent mapped outputs from operating "ISOLATE" the zone first. Refer to "Zone Isolate or De-Isolating" section.

From the zone status recall display for the zone to be tested, press:



From other information displays or the base display, press:



where n n n is the number of the zone to test.

- The relevant test signal is applied to all circuits on the zone.

- Once all the circuits have gone into the test state, the relevant zone indicator and fault sounder are turned on, if that zone is not isolated. FFCIF mode may be entered if the zone being alarm tested is mapped to the MAF.

  The LCD displays a test pass message, and pressing the "ACK" key clears the test.

- If any circuit does not enter the correct state in response to the test signal, then the test fails, the relevant zone indicator stays OFF and the buzzer sounds its "TEST FAIL" cadence. The LCD displays a test fail message, and pressing the "ACK" key clears the test.

7.1.3 ABORT ZONE TEST

Press the "ACK" key at any time to abort the ZONE TEST function.

- Zone circuits under test are returned to normal.

7.1.4 NOTES

(a) An Alarm detected on the zone under test when one is not expected (eg during the FAULT test) is processed normally and the test aborted. Similarly, faults during the ALARM test activate the fault sounder and may terminate the test.

(b) During the zone test sequence any other zones to which the tested circuits are mapped behave as they normally would given FAULT and ALARM conditions.

(c) All alarm processing delays (AVF sequences, etc) are still active so the alarm response time may be up to 60 seconds, depending on the circuit type.

(d) An AVF delay sequence initiated by a zone alarm test continues if the zone test is aborted by the "ACK" key before the test has passed. That is, an alarm re-test of the same zone within 120 sec will give an instant alarm.

(e) The test condition is automatically removed from the circuits after 120 seconds.

(f) Alarms or faults on any circuits zones other than those under test will abort the test and remove all test signals. The alarm or fault is then treated normally.

(h) On Flow Switch Zones the test relay will operate for 2 minutes. If no alarm is received within that time, the test will fail.

(i) It is not possible to start a zone test if there is an un-acknowledged alarm or fault present; or if there is an Auto, System, Battery, Zone or Auto-Reset Test in progress.

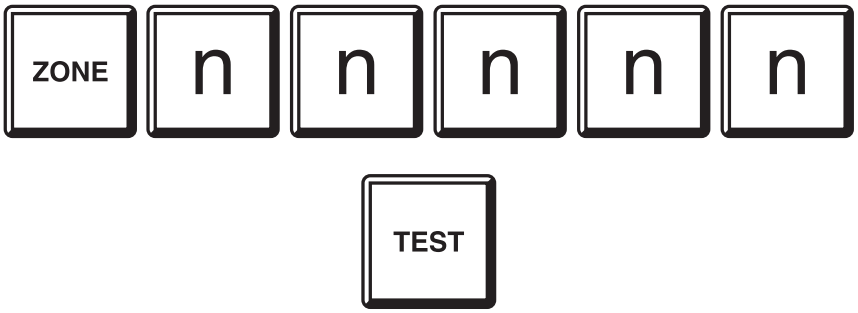
Also, Flow Switch Zones cannot be tested if they do not have any relay programmed for alarm testing.

7.1.5 OPERATING SEQUENCE (NETWORKED ZONE)

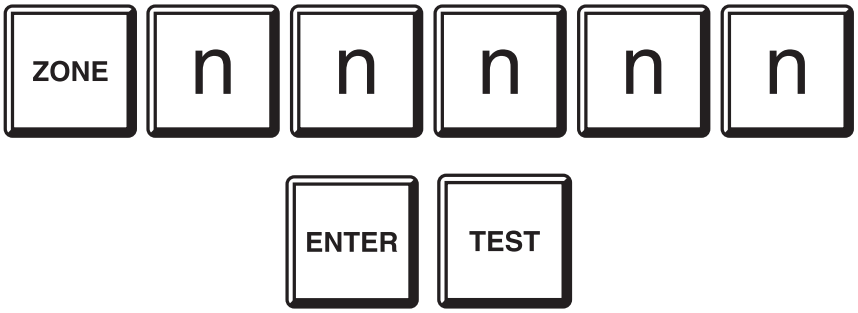
OPTION: To prevent mapped outputs from operating "ISOLATE" the zone first.

From the zone status recall display for the zone to be tested, press:

From other information displays or the base display, press:



OR



Where nnnnn is the number of the network zone to be tested. (Refer Section 2.5.1 for networked zone numbering).

If nnnnn is a network zone, the network test prompt is displayed, querying for the type of test to be performed:

Press

for alarm test

for fault test

for operate test

for auto reset test

to abort a test in progress

The F4000 will then send the test command to the FIP with the selected zone on it.

OPERATING SEQUENCE (NETWORKED ZONE) (CONTINUED)

The LCD will display the network zone with a message saying "Network Command Sent". After a brief period the message should change to "Network Command Accepted", and the test will begin. Refer to Section 2.5.6 for a description of these and other possible LCD display messages.

If an exception occurs at the remote FIP, eg. a test failed, then an exception display may be received indicating the reason why. Refer to Section 2.5.7 for a description of Exception Messages.

Notes:

(i) The effect of the test command is dependant upon the receiving FIP type, eg. how the zones will be tested, how other zones/FIPs, etc, are affected by the test, and so forth.

(ii) If an F4000 receives a test command it will process it as if an operator at that FIP had initiated the command. If the LCD at that F4000 is at its base display, then the LCD will indicate that a test is in progress. It will not display the abort prompt that would normally be displayed for a locally initiated test.

(iii) If the network zone number entered corresponds to a local zone, the LCD/keypad test menu continues as if a local zone number had been entered. The network zone test menu is not used, thus no network messages are displayed.

7.2 ZONE OR ANCILLARY ISOLATE OR DE-ISOLATE

7.2.1 FUNCTION

To isolate or de-isolate a selected zone. Section 7.2.2 covers a single zone at this panel (local), Section 7.2.3 covers a range of local zones, Section 7.2.5 covers a single networked zone and 7.2.6 covers a range of networked zones.

7.2.2 OPERATING SEQUENCE - SINGLE ZONE

To isolate the zone shown on a zone status recall display, press:

From any other information display or base display, press:

To isolate or de-isolate zone n n n.

The LCD displays the current isolate status of the zone. Pressing the "ACK" key changes the isolate state. Pressing the "CLEAR" key aborts the Isolate command.

7.2.3 OPERATING SEQUENCE - ZONE RANGE (LOCAL)

To isolate a range of zones when a zone recall is being displayed, press the:

key until the LCD is at the base display.

To isolate a range of zones from information displays other than zone recalls, or from the base display, press:

OPERATING SEQUENCE - ZONE RANGE (LOCAL) (CONTINUED)

The LCD will display the selected range of zones, i.e. zone n n n to zone m m m inclusive, plus the options to isolate or de-isolate the range.

To isolate the range of zones, press:

To de-isolate the range of zones, press:

The LCD will display the selected range of zones, plus the choice of Alarm zones, Ancillary Control zones, or All zones.

To isolate or de-isolate...

Alarm Zones only, press:

Ancillary Control Zones only, press:

All Zones, press:

7.2.4 NOTES

(a) Isolated zone(s) will register and indicate alarm and faults but are prevented from operating system outputs.

(b) If the zone is in Auto-Reset mode, a zone de-isolate command will exit Auto-Reset mode and leave the zone isolated.

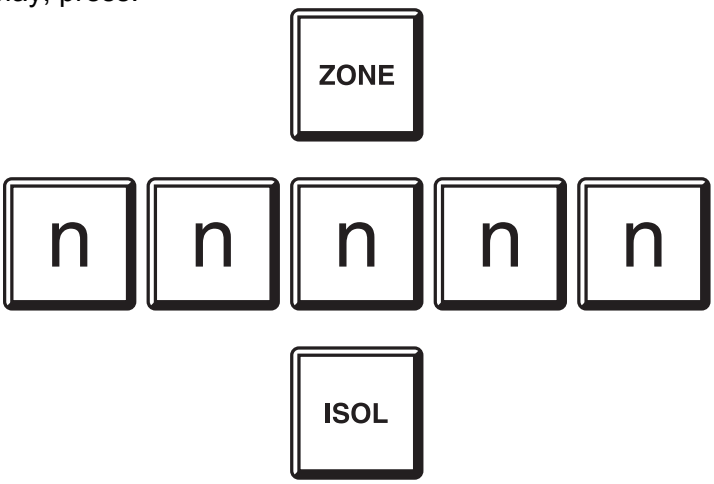
(c) Any fault indication is unaffected by Zone Isolate/De-Isolate.

(d) An un-silenced alarm indication will go steady on isolate and any alarm will become unsilenced on De-Isolate.

(f) For zone range de-isolate commands, any zones that are off-normal, i.e. Alarm, Operated or Fault, will not be de-isolated, and at the end of the command the LCD will display "Not All Zones De-Isolated". Use the Zone Status search functions to determine which zones did not get de-isolated.

7.2.5 OPERATING SEQUENCE - SINGLE NETWORK ZONE

From the base display, press:



To isolate or de-isolate network zone n n n n n.

Refer to Section 2.5.1 for the format of network zone numbers.

The LCD will display the selected network zone, plus the options to isolate or de-isolate it. The displayed status of the zone is retrieved from across the network. There may be a delay of a few seconds before this is displayed. Wait until the data is displayed before proceeding.

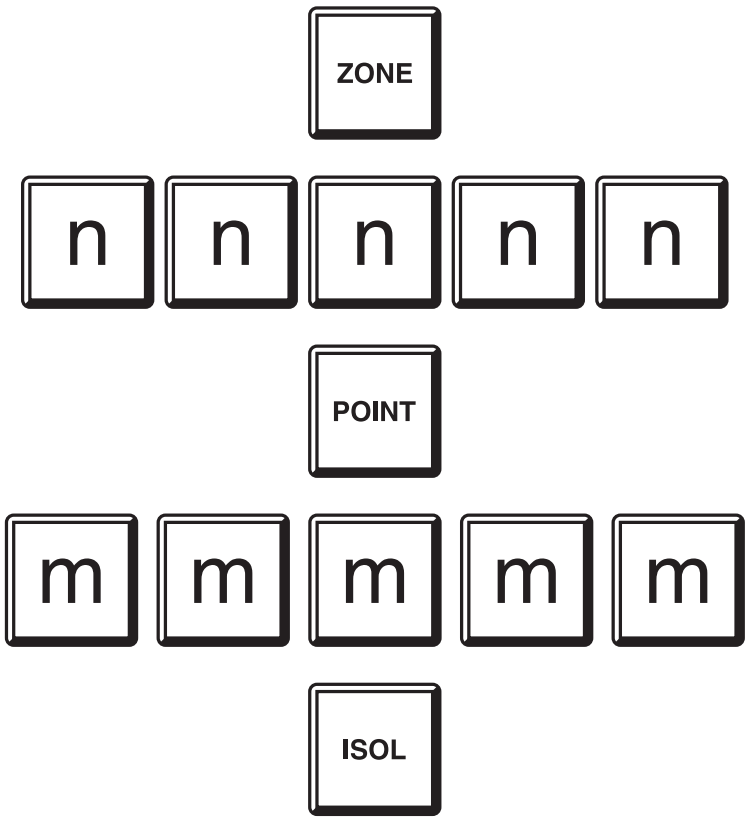
To isolate and de-isolate the network zone, press:

The LCD will display the network zone with a message saying "Network Command Sent". After a brief period the message should change to "Network Command Accepted". Refer to Section 2.5.6 for more detail on these and other possible LCD display messages.

7.2.6 OPERATING SEQUENCE - NETWORK ZONE RANGE

If a zone recall is being displayed, then press the CLEAR key repeatedly until the LCD is at the base display.

To isolate a range of network zones.



The LCD will display the selected range of zones, i.e. zone n n n n n to zone m m m m m inclusive, plus the options to isolate or de-isolate the range.

To isolate the range of zones, press:

To de-isolate the range of zones, press:

A prompt is then given to isolate or de-isolate...

Alarm Zones only, press:

OPERATING SEQUENCE - NETWORK ZONE RANGE (CONTINUED)

Ancillary Control Zones only, press:

All Zones, press:

The LCD will display the network zone range with a message saying "Network Command Sent". After a brief period, the message should change to "Network Command Accepted". Refer to Section 2.5.6 for more details on these and other possible LCD display messages.

Note that if the remote F4000 is unable to de-isolate all of the zones due to some of them having an alarm or fault status, an exception message can be received indicating this. Refer to Section 2.5.7 for a discussion of Exception Messages.

7.2.7 NOTES

(i) The effect of the isolate/de-isolate command is dependant upon the receiving FIP type, eg. which zones will be isolated/de-isolated, how a zone is affected by isolation/de-isolation, and so forth.

(ii) If an F4000 receives a network isolate/de-isolate command:

(a) Isolated zone(s) will register and indicate alarm and faults but are prevented from operating system outputs.

(b) If the zone is in Auto-Reset mode, a zone de-isolate command will exit Auto-Reset mode and leave the zone isolated.

(c) An un-silenced alarm indication will go steady on isolate and any alarm will become unsilenced on De-Isolate.

(d) For zone range de-isolate, zones that are in Alarm, Operate or Fault will <u>not</u> be de-isolated, and at the end of de-isolation the F4000 will send an exception message to the source of the command indicating that not all zones were de-isolated.

(iii) Isolate/De-Isolate commands to network zones that are on the local panel will be implemented as if the command has been entered using the local zone numbers. The network will not be used, and no network messages will be displayed.

7.3 ANCILLARY TEST

7.3.1 FUNCTION

To test the operation of "ACZ 0" or any other Ancillary Control Zone (ACZ), if configured.

If the ACZ to be tested is on a remote panel, use the networked zone command (refer Section 7.1.5).

7.3.2 OPERATING SEQUENCE

From a zone recall display which is displaying the ACZ to be tested, press:

From other information recalls or the base display, press:

where n n n is the number of the ACZ to test.

- The selected ancillary control zone is automatically isolated during this test, as indicated by the ACZ "ISO" indicator, or the "ANCILLARY ISOLATED" indicator.

- The LCD displays "Press ACK to test operate this ACZ".

- The actual outputs are not operated unless the "ACK" key is pressed within the next 30 seconds. Pressing the "CLEAR" key aborts the test.

7.3.3 TEST OPERATION

The ancillary zone is ACTIVATED and ISOLATED for 30 seconds, as indicated by the ACZ's "ALM" and "ISO" indicators. For ACZ 0, its ISOLATE indicator flashes to indicate that it has been activated for testing, but is still isolated.

The actual outputs however, do not operate unless the ACZ is de-isolated during this period by pressing the "ACK" key, in which case the outputs operate for 5 seconds, after which the test terminates.

On completion of the test the ancillary control zone returns to its pre-test isolate state.

7.3.4 EXIT TEST

Press the "CLEAR" key once, to abort the test before the 30 second timer expires. The ACZ will not be activated.

7.3.5 NOTES

(a) An attempt to test an already operated ACZ results in an error beep and no test is initiated.

(b) It is possible to test only one ACZ at a time. (Note that one ACZ may include more than one relay, depending on the number of relays mapped to that zone).

(d) An Ancillary Test cannot be started if there is an un-acknowledged alarm or fault present; or if an Auto, System, Battery, Zone or Auto Reset Test is in progress.

7.4 ZONE OR ANCILLARY RESET

7.4.1 FUNCTION

A Zone Reset command performs the following functions:

(a) For Alarm Zones:

- Resets all circuits mapped to the selected zone.
- Clears ALARM and FAULT conditions and indications.
- Silences the alarm and fault sounder, if no other alarms or faults exist.
- Removes the Zone from Zone Test.
- Returns the Zone from Auto-Reset mode to normal operation.

(b) For Ancillary Control Zones:

- Resets any latched "FLT" indicator associated with the selected ancillary control zone.

7.4.2 OPERATING SEQUENCE – SINGLE ZONE

From zone recall displays, to reset the displayed zone, press:

- The LCD will query if this is the zone to be RESET. Press "ACK" to reset, or "CLEAR" to abort.

From all other information displays, or the base display, press:

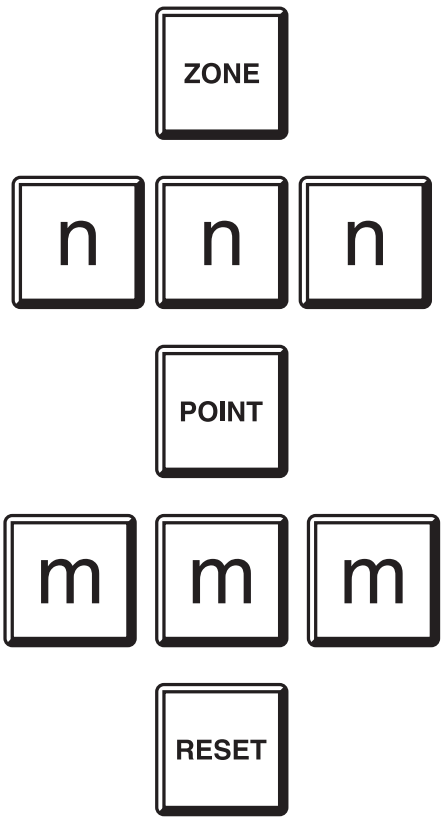
to reset zone number n n n. A networked zone may also be reset – refer Section 2.5.1 for networked zone numbering.

- Any red alarm indicators that were steady or flashing will be turned OFF and the alarm circuit(s) reset.

- Any amber fault indicators that were showing will be turned OFF.

7.4.3 OPERATING SEQUENCE - ZONE RANGE

From the base display, press:



to reset zone numbers n n n to m m m. This command can also be used on networked zones - refer to Section 2.5.1 for network zone number entry.

For networked zones the LCD will display the network zones with a message saying "Network Command Sent". After a brief period the message should change to "Network Command Accepted".

Refer to Section 2.5.6 for more details on these and other possible LCD display messages.

If an exception occurs at the remote FIP, then an exception display may be received indicating the type of exception. Refer to Section 2.5.7 for a discussion of Exception Messages.

IMPORTANT The range of zones entered at an F4000 must be limited to zones on a single networked FIP, i.e. the range cannot encompass zones on more than one FIP.

7.4.4 NOTES

(a) If any circuit is still in alarm or fault, then after the circuit input delay and the zone reset delay the zone will return to alarm or fault - call service.

(b) For New Zealand mode FIPs, zone defects (faults) are always non-latching, whereas the LED indicators are always latching. Thus, a zone may be NORMAL, even though the DEFECT LED indicator is ON. In this case, the LED indicator can be cleared by resetting the zone.

(c) The effect of a network zone reset command is dependent upon the type of FIP that receives the command.

(d) If a network zone reset command is received by an F4000...

(i) If any circuit that is reset remains in alarm or fault, then the zone(s) mapped to by the circuit will also return to alarm or fault.

(ii) If the amber fault indicator reappears, then isolate the zone and call service.

(iii) For New Zealand mode FIPs, zone defects (faults) are always non-latching, whereas the LED indicators are always latching. Thus, a zone may be NORMAL, even though the DEFECT LED indicator is ON. In this case, the LED indicator can be cleared by resetting the zone.

(e) Reset commands to network zones that are on the local panel will be implemented as if the command had been entered using the local zone numbers. The network will not be used, and no network messages will be displayed.

7.5 AUTO-RESET MODE

7.5.1 FUNCTION

Allows testing of all detectors on an Alarm Zone Circuit without the need for a second person resetting alarms at the FIP.

Auto-Reset mode isolates the zone from outputs, and automatically resets detectors in alarm on the circuits being tested.

When in Auto-Reset mode, the alarm bell will operate for 2 seconds when the zone goes into the alarm condition unless the bells output is isolated or the zone is not mapped (programmed) to operate the bells.

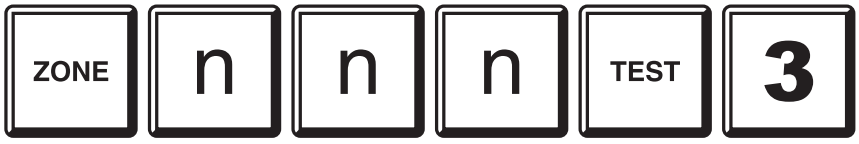
WARNING: If a circuit is mapped to two or more zones, then it is necessary to isolate the other zones or ancillary control zones, otherwise alarms or outputs could be inadvertently activated.

To put a networked zone into Auto-Reset mode, refer to Section 7.1.5.

7.5.2 OPERATING SEQUENCE

From zone recall displays, to Auto-Reset test the displayed zone that is not an ACZ, press:

From all other information displays, or the base display, press:



to auto-reset test Zone nnn, if Zone nnn is NOT an ACZ.

7.5.3 TEST OPERATION

While in the AUTO-RESET mode the zone is automatically isolated from all mapped outputs except the alarm bell, which operates for 2 seconds when the zone goes into alarm (unless the bells output is isolated, or the zone is not configured to operate the bells).

On operation of a detector and after the 2 second transient suppression delay the zone circuit will go into the alarm condition and stay in that condition for 8 seconds to allow the detector LED to be checked. The detector circuit is then reset for 15 seconds to allow smoke or heat to clear.

To assist with identification of the detectors that are wired to particular alarm zones the zone alarm indicators latch in this mode of operation, flashing when an alarm condition is present on the circuit and steady on the removal of the alarm condition.

If a fault occurs on a zone in Auto-Reset mode then the Fault LED latches on steady until the end of auto-reset mode, even if the zone is programmed as non-latching.

Resetting or Isolating the zone will cancel the auto-reset Test mode for the zone.

Also, if an operator attempts to test a zone already in auto-reset mode, the LCD will query whether the auto reset test for that zone should be stopped. To do so, press the "ACK" key, and the zone will be removed from auto reset mode. Note the warning below.

7.5.4 EXIT TEST

To exit the test, either RESET the zone as per Section 7.4, or ISOLATE the zone as per Section 7.2.

WARNING: A detector on the zone may have gone into an permanent alarm. e.g. a fusible link heat detector excessively exposed to heat during the test.

Before resetting the zone, wait for approximately 20 seconds and ensure that the ALARM LED is STEADY. If it is flashing during this period, "ISOLATE" the zone and investigate for faulty detectors.

7.5.5 NOTES

(a) Multiple zones can be set to "AUTO-RESET" mode at the same time.

(b) "AUTO-RESET" mode cannot be entered if there is any Zone, Ancillary, Automatic, System, or Battery Test in progress.

(c) If any zone is in "AUTO-RESET" mode then it is not possible to perform a Zone, Ancillary, System or Battery Test.

(d) All programmed input time delays (e.g. alarm verification) are overridden to allow the basic operation of the detectors to be easily tested.

(e) The internal sounder is not operated by a zone in "AUTO-RESET" mode.

(f) A zone in "AUTO-RESET" mode will automatically return to normal operation after ONE HOUR from the last alarm received. However no reset signal is applied to the alarm zone circuits.

(g) Isolating the Zone - should be used to exit the test if the alarm LED is still flashing to prevent inadvertent signalling of alarms to the brigade.

(h) Pressing global "RESET" or "ISOLATE" keys and resetting of zones not under test, will not affect any of the zones or circuits in Auto-Reset mode.

(i) This test is similar to the New Zealand FP4 and FP4000 fire alarms non-latching mode, except that with F4000 only the selected zones are in Auto Reset test mode. All other zones function normally.

7.6 ZONE STATUS RECALLS

7.6.1 FUNCTION

Allows an operator to recall the status for a specific zone, or, search for those zones meeting a specified criteria, e.g. in fault or alarm.

7.6.2 OPERATING SEQUENCE - ZONE STATUS

To recall a specific zone's status, press:

where nnn is the zone number. A networked zone may also be recalled, refer Section 2.5.1 for zone numbering details.

The first line of the LCD will show the zone number and any zone name programmed for that zone.

Note that there may be a delay between requesting a network zone status and display of the true status, due to network delays. In this case, F4000 will display default text, ie. just the network zone number, until the data is received. The display will update with the zone name and status when it is received.

The second line displays the zone alarm type text for that zone, followed by its status.

The status consists of any of the following:

Prealm - the zone is in prealarm.
Alarm - the zone is in alarm.
Operate - the ACZ is operated.
Fault - the zone is in fault.
Isolate - the zone is isolated.
Test - the zone is currently being tested.
ARst - the zone is currently being auto reset tested.
Normal - the zone is none of the above.

The status returned by non-F4000 FIPs may be different.

To view the status of other zones, press:

to view the status of the next zone.

to view the status of the previous zone.

7.6.3 OPERATING SEQUENCE - ZONE SEARCHES

The zone search functions allow an operator to query the local FIP and other networked FIPs for zones meeting specified status criteria, e.g. in alarm.

To start a search from the base display, or any information display, press:

Then select the option required. Valid options are:

Menu 1:

Status	-	zone status (Refer 7.6.2)
Alarms	-	search for any zone in alarm, whether or not they are isolated.
Faults	-	search for any zones in fault, whether or not they are isolated.
More	-	accesses Menu 2.

Menu 2:

Isolates	-	searches for any zones that are isolated.
Off Normal	-	searches for any zones that are not normal.
Pre-alarm	-	searches for any zones that are in pre-alarm.
More	-	accesses Menu 1.

OPERATING SEQUENCE - ZONE SEARCHES (CONTINUED)

When an option has been selected, the FIP searches for a zone from ACZ 0 up to the programmed maximum LCD zone that meets the specified criteria.

If there are no local zones that meet the criteria, the F4000 then polls the other FIPs on the network to determine whether they have any zones that meet the criteria.

Once a zone is found that meets the criteria specified, the LCD display reverts to a zone status display for that zone. When the NEXT or PREV key is pressed, the search continues for the next or previous zone, respectively, that meets the original search criteria. While the F4000 is determining the next or previous zone that meets the criteria the LCD display "Searching".

If no zones matching the criteria are found, the LCD briefly displays a message, and reverts to the base display.

Note that due to network delays and delays due to processing at a number of remote FIPs, a zone search command may take some time to complete, especially for larger systems with no zones that match the search status.

8 OPERATING INSTRUCTIONS - POINT FUNCTIONS

8.1 ANALOGUE RECALLS

8.1.1 FUNCTION

Allows an operator to recall the status or analogue values for a particular point, or, with AAR or MPR support, search for those points meeting a specified criteria, e.g. in dirty alert or in pre-alarm.

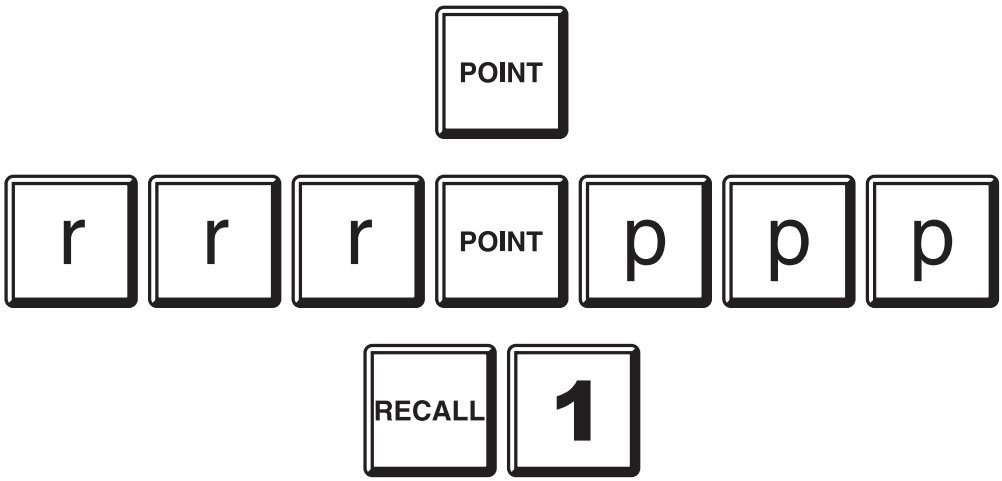
When viewing a recall for a specific point, pressing the 1, 2, 3 or 4 keys will make the recall show Status, Analogue Values, Analogue Levels and % Dirty, respectively, for that point. This functionality is not available when running Point Status or Point % Dirty searches.

In the following Point Functions, if the point number is not entered, then the first configured point will be automatically used.

8.1.2 OPERATING SEQUENCE - SPECIFIC POINT STATUS

Valid for ADR/ARR/AAR/MPR points.

To recall a specific point's status, press:



where rrr is the responder number
ppp is the point number

The FIP will poll the AAR, MPR or local ADR/ARR database for the status of the point, and display it. Only those states that are active are displayed. The LCD briefly shows an asterisk, "*", in the top right hand corner of the display when new data has arrived.

The possible displays for a point are:

PreAlm	-	the point is in pre-alarm.
Alarm	-	the point is in alarm.
Fault	-	the point is in fault.
Dirty	-	the point is in Dirty Alert.
Scan1	-	the AAR or MPR cannot communicate with the point on Line 1.
Scan2	-	the AAR or MPR cannot communicate with the point on Line 2.
NodeF	-	the AAR or MPR cannot communicate at all with the point.
Isol	-	the point is isolated.
CBF	-	the output device has failed to operate.
Normal	-	the point is none of the above.

OPERATING SEQUENCE - ANALOGUE STATUS (CONTINUED)

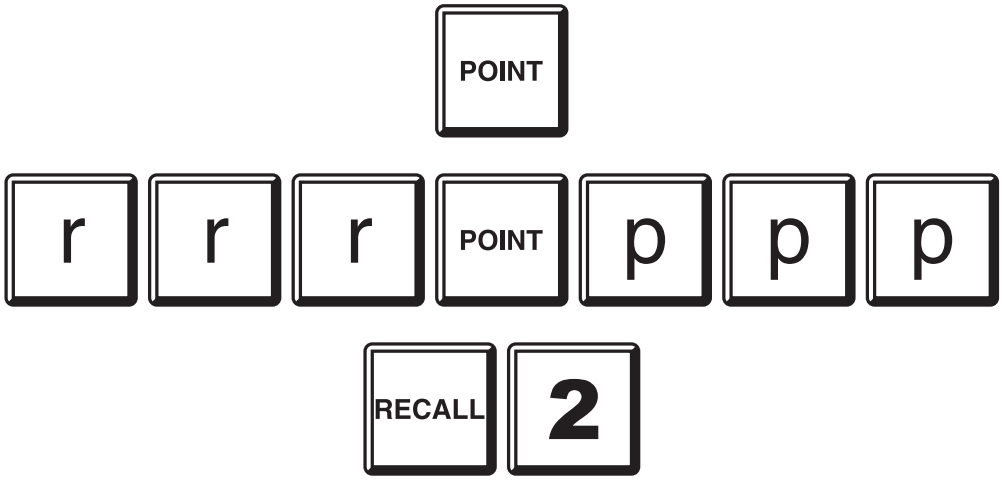
To view the status of other points, press:

to view the status of the next configured point.

to view the status of the previous configured point.

8.1.3 OPERATING SEQUENCE - SPECIFIC POINT ANALOGUE VALUES

To recall a specific point's raw analogue values, press:



where rrr is the responder number
ppp is the analogue point number

The FIP will poll an AAR or MPR for the analogue values for the point and display them. The analogue value types are:

CV	-	Current Value	(0-31 for EWD, 0-255 for 130 Series)
TV	-	Tracked Value	(0-31 for EWD, 0-255 for 130 Series)
HH	-	History High Level	(0-31 for EWD, 0-255 for 130 Series)
HL	-	History Low Level	(0-31 for EWD, 0-255 for 130 Series)
RR	-	Rate of Rise (ROR)	(0-255 for 130 Series Thermals)
HR	-	ROR History High	(0-255 for 130 Series Thermals)

The LCD briefly shows an asterisk, "*" ,in the top right of the display whenever new data for one of the analogue values is received.

If this command is entered for an ADR/ARR point, the display will show “No Recall Information Available”.

OPERATING SEQUENCE - ANALOGUE VALUES (CONTINUED)

The FIP polls for the current value more often than the other analogue values.

Refer to the AAR/MPR Technical Manuals for descriptions of these values.

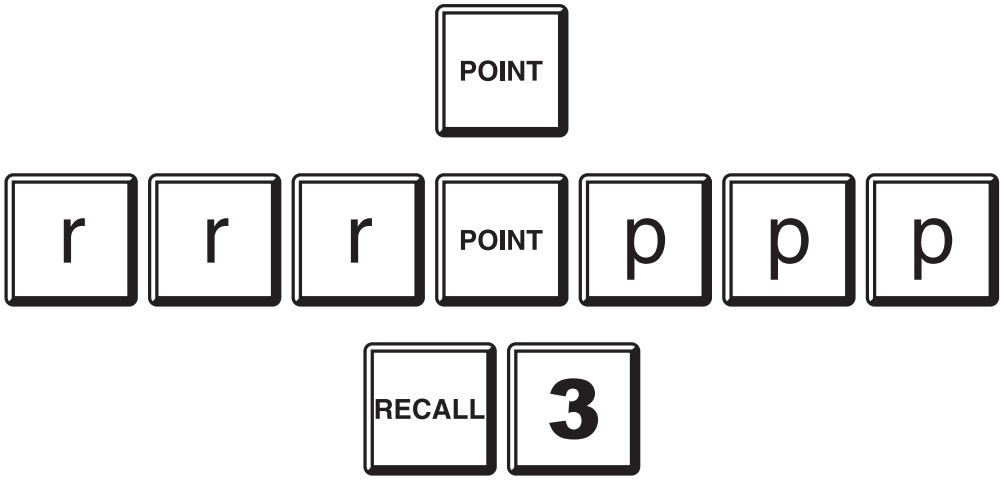
To view the analogue values of other points, press:

to view the analogue values for the next configured point.

to view the analogue values for the previous configured point.

8.1.4 OPERATING SEQUENCE - SPECIFIC POINT ANALOGUE LEVELS

To recall a specific point's analogue levels in appropriate units press:



where rrr is the responder number
ppp is the analogue point number

The FIP will poll the AAR or MPR for the required information for the point and display the analogue levels.

The LCD briefly shows an asterisk, "*" ,in the top right of the display whenever data for the analogue levels is updated.

The raw analogue value display (option 2) shows the data "as sent" from each point. This may include the effect of detector contamination, etc.

The Analogue Level display (option 3) removes these effects, and displays (using appropriate units) the actual level of smoke being detected (for smoke detectors), temperature (for type A and B thermal detectors) and temperature rate of rise (for type A thermal detectors). Also shown is the appropriate pre-alarm and alarm sensitivities for the detector.

OPERATING SEQUENCE - SPECIFIC POINT ANALOGUE LEVELS (CONT'D)

Note that the temperature reading of the T131A heat detector is only accurate in the range of 50°C to 70°C. At room temperature (eg 25°C) the error in the temperature reading is typically ±10°C.

If the temperature displayed is 20°C then the actual temperature could be anywhere below 30°C. If the temperature displayed is below 20°C, then the value returned by the sensor is invalid and a fault may be generated.

There may be a brief delay before the current level (CL) value is displayed, while the FIP is retrieving all of the information required before the CL calculation can be made.

If this command is entered for an ADR/ARR point, the display will show “No Recall Information Available”.

Display Formats

The display for analogue detector analogue levels is:

CL:m n PS:p AS:q xxx

where m = Detector's current analogue level
n = Type A thermal detector rate of rise
p = Detector's pre-alarm sensitivity
q = Detector's alarm sensitivity
xxx = Appropriate units for current level and sensitivity, i.e. %/m, MICX or °C.

Analogue points that are not smoke or heat detectors display current levels as:

CL:0 PS: AS:

I.e. CL is forced to 0 and the sensitivities are left blank as they are not appropriate.

To view the current levels of other points, press:

to view the analogue levels for the next configured point.

to view the analogue levels for the previous configured point.

8.1.5 OPERATING SEQUENCE - POINT SEARCHES

The point search functions allow an operator to query AARs, ADRs and MPRs for points meeting specified status criteria, e.g. in dirty alert. (Note that the AAR must support the search functions. If the AAR does not support these functions, the search will complete with no points found. MPRs support all of the search functions. The FIP itself processes searches on behalf of ADRs and ARRs).

To start a search from the base, or any information display, press:

Then select the option required. Valid options are:

Menu 1:

Status	-	specific point status and analogue value recalls (Refer 8.1.2, 8.1.3 and 8.1.4).
Alarms	-	search for any points in alarm.
Pre-Alarms	-	search for any points in pre-alarm.
More	-	accesses Menu 2.

Menu 2:

Faults	-	searches for any points in fault.
DirtyAlrt	-	searches for any detectors in dirty alert.
Off Normal	-	searches for any points with off-normal status.
More	-	accesses Menu 3.

OPERATING SEQUENCE - POINT SEARCHES (CONT'D)

Menu 3:

Isolates - searches for isolated points.

% Dirty - searches for dirty detectors.

More - accesses Menu 1.

When the point status search option has been selected, the search begins and the LCD displays "Searching...."

If the % Dirty search option has been selected, a prompt requests entry of a % Dirty value. Enter a number between 0 and 100.

The search will find all detectors that have a calculated % Dirty value greater than or equal to the entered number.

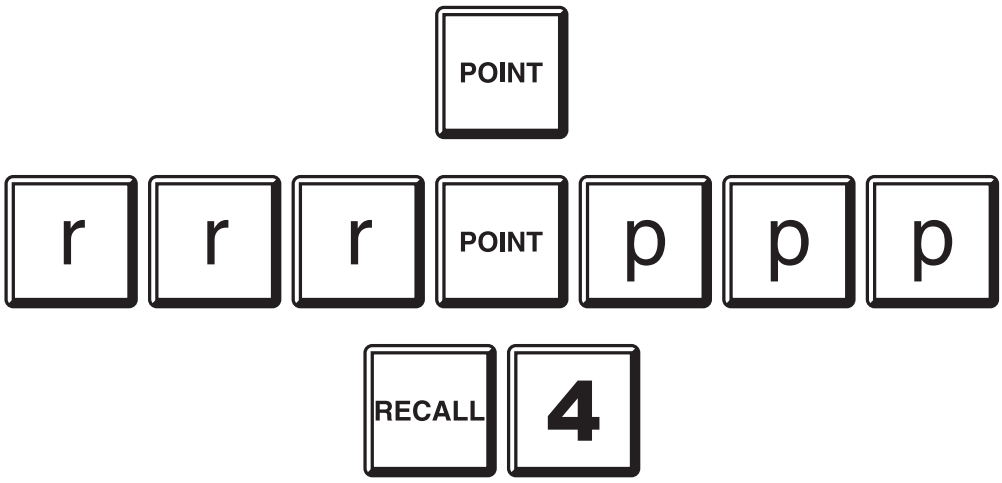
The FIP queries each AAR, ADR or MPR for any points meeting the selected criteria.

Once a point is found, the LCD display reverts to a point status recall for that point or the % Dirty Detector display if % Dirty Search was selected. When the "NEXT" or "PREV" key is pressed, the search continues for the next or previous point, respectively, that meets the original search criteria.

If no points are found, the LCD briefly displays a message, and reverts to the base display.

8.1.6 OPERATING SEQUENCE - SPECIFIC POINT DETECTOR DIRTY LEVEL

To recall a specific point's % Dirty level press:



where rrr is the responder number
ppp is the analogue point number

The FIP will access its internal database for the required information for the point and display the % Dirty level.

The LCD briefly shows an asterisk, "*", in the top right of the display whenever data for the % Dirty display is updated.

% Dirty information is displayed only for MPR smoke detector points. For all other points there is no % Dirty level, thus the F4000 displays “No Recall Information Available”.

Display Formats

The display for point detector dirty levels is:

%D: m% TV:n CM:p UT:q AS:r

Where m = Detector's current % Dirty level
n = Detector’s Tracked Value
p = Detector's Maximum Clean Air Level
q = Detector's Upper Tracking Limit
r = Detector’s Alarm Sensitivity

OPERATING SEQUENCE - SPECIFIC POINT DETECTOR DIRTY LEVEL (CONT'D)

To view the % Dirty levels of other points, press:

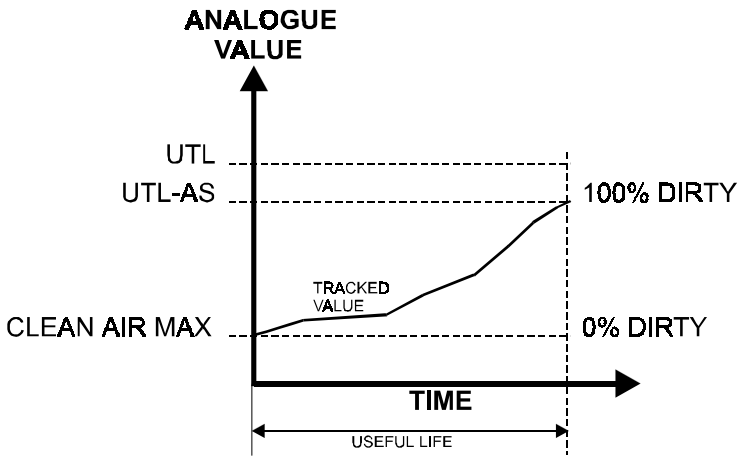
NEXT

to view the % Dirty level for the next configured point.

PREV

to view the % Dirty level for the previous configured point.

NOTES: One measure of the useful life of a detector is how far its Tracked Value (TV) has shifted from its "as manufactured" clean air value "Clean Air Max" towards the Upper Tracking Limit (UTL). UTL, combined with the detector's Alarm Sensitivity "AS", determines the maximum TV at which the detector's sensitivity is unaffected. The increase in TV over time is usually a result of contamination.



The % Dirty level of a detector is then determined by calculating how far between Clean Air Max and UTL-AS the TV is.

Searching for detectors that are more than, say 80% dirty, allows for maintenance of those detectors before they start becoming more sensitive, and/or Dirty Alert is signalled for that detector.

8.2 ANALOGUE DETECTOR HISTORY, TRACKING, DEVICE RESET

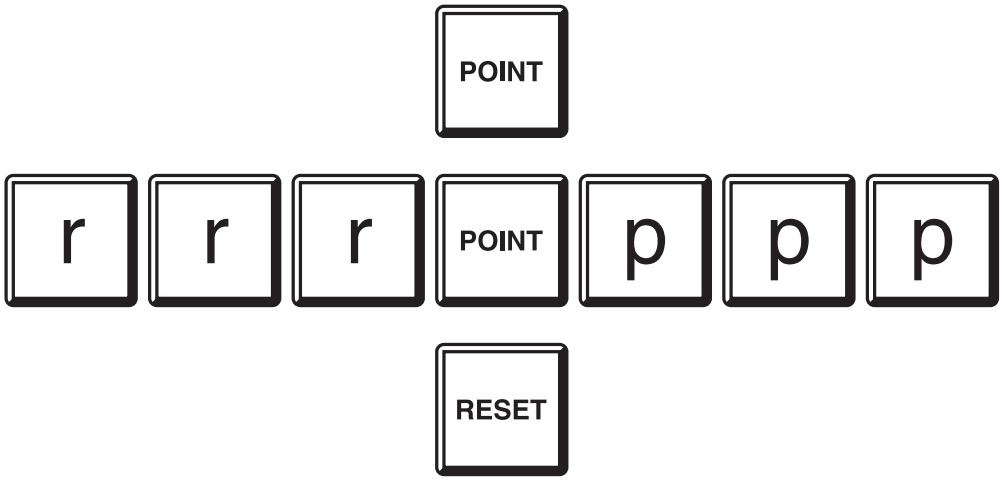
8.2.1 FUNCTION

Allows an operator to reset the analogue history or tracked value for a detector. These values are stored and maintained at the AAR or MPR.

A reset can also be applied to the physical device itself.

8.2.2 OPERATING SEQUENCE

To reset an analogue detector's History or Tracked Value, or to apply a reset to the detector itself, press:



where rrr is the responder number
ppp is the analogue point number

The LCD prompts for the type of reset required, press:

to reset the point, i.e. turn LED off, and force detector to normal.

to reset the detector history high and low values.

to reset the detector tracking, history high and low values.

8.2.3 NOTES

(1) The analogue history can be used to see fluctuations in a detector's analogue value, and allow adjustment of the sensitivity accordingly.

(2) The Tracked Value would normally be reset only if a detector has been replaced.

This ensures that the actual sensitivity of the detector is not increased or decreased due to the tracked value of the previous detector. If the tracked value was not reset, the result could be false alarms, or alternatively, annunciation of a true alarm may be significantly delayed.

It is important that the detector is in clean air for 5 minutes before and 5 minutes after the reset tracking command is entered. If this condition is not met, the detector tracked value could be unnecessarily elevated, which may delay annunciation of alarms.

(3) Resets of analogue history, tracked value and the device itself will occur only if the responder software version supports these actions.

(4) For ADR and ARRs, the input points (1-4) may be reset. Output points (5-8) cannot be reset, and resets of tracked value and history on any points (1-8) cannot be done as these functions are not supported.

8.3 SETTING DETECTOR SENSITIVITIES

8.3.1 FUNCTION

To allow an operator to view and, if desired, adjust the Pre-Alarm and Alarm Sensitivities of analogue detectors.

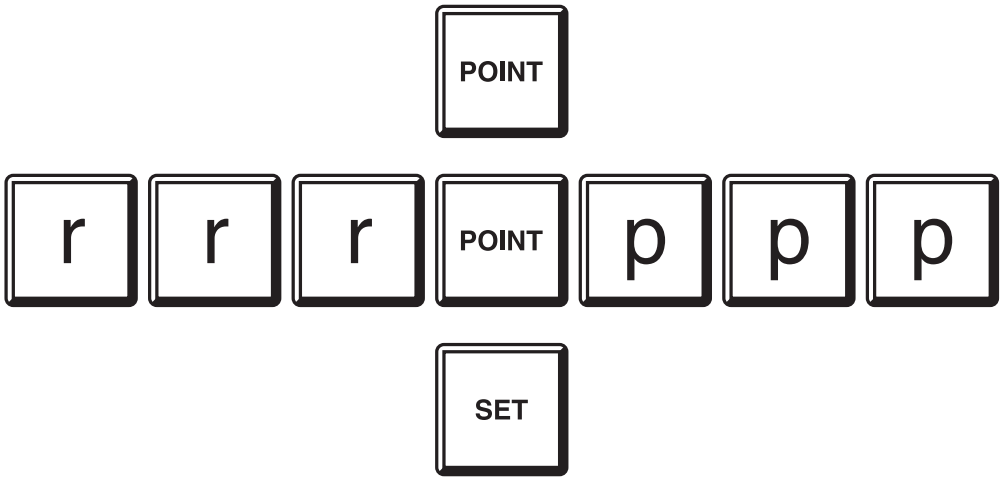
IMPORTANT NOTES

- The LCD Access Password must be known by any operator who will be adjusting the sensitivity.
- The database must be either hardware or software WRITE ENABLED.
- Sensitivities are entered as MICX, %/m, or °C.
- It is recommended that the FIP is Brigade Isolated and/or any affected zones are isolated BEFORE any changes are made. This will prevent sensitivity entry errors, which could cause undesirable detector operation, from affecting the building occupants or the Brigade.
- Points that have their sensitivities adjusted should also have their tracking reset.

8.3.2 OPERATING SEQUENCE

From the point recall display for the specified point, press:

From the base display or any other information display, press:



where rrr is the responder number (1-127)
ppp is the analogue point number (1-200)

The FIP will check to see that the point rrr.ppp is in fact an addressable detector for which the alarm or pre-alarm sensitivity can be changed.

The LCD will display the point number and type, and prompt for viewing of or changes to the pre-alarm or alarm sensitivity. Press:

To view or set Pre Alarm sensitivity, or

To view or set the Alarm sensitivity.

The LCD then displays the point number and type, along with current setting for the selected sensitivity, and prompts for a new setting.

The current setting is displayed in the form "t sss uuu" where:

t = D - Default sensitivity
A - Alternative sensitivity
I - Individual sensitivity

sss = the sensitivity setting.

uuu = the appropriate units (MICX, %/m, Deg C).

OPERATING SEQUENCE (CONT'D)

Press:

to step back one menu level.

to step to the next analogue detector.

to step to the previous analogue detector.

to set the detector sensitivity to the default value.

to set the detector sensitivity to the alternative value.

to set the detector sensitivity to an individual value. The LCD will prompt for the value, in appropriate units. Enter the new sensitivity in the appropriate units, ie thermal detectors in °C, photoelectric detectors in %/m, ionisation detectors in MICX. Note that there may be limits to the magnitude of the sensitivities that can be entered (refer to Section 8.3.4).

Immediately a change is made, the FIP sends the new setting to the detector.

When the point setting menus are exited from, the FIP determines whether any changes were made, and if so, re-calculates and saves the database CRC.

WARNING

Until the database CRC is re-calculated, do not restart or power-down the FIP. If this occurs, the FIP will generate a "Database CRC Fault" as the CRC will be incorrect, and the FIP will not operate. A programming terminal will then be required to re-start processing.

8.3.3 NOTES

(1) The first time a sensitivity change is attempted, the FIP will determine if access is permitted. This includes testing for the ability to write to the EEPROM (the hardware link must be in the WRITE ENABLE position, or software EEPROM WRITE ENABLE must be available), access to the EEPROM (processing is running, and there are no Power Up, System or Automatic Tests running), and verifying the LCD Access Password entered by the operator.

Changes to the sensitivities can only be made if the above conditions are met.

If the changes cannot be made due to the above conditions not being met, or due to the AAR or MPR receiving its database or being used by other operators (e.g. another operator is logged into the programming terminal, and is using the Analogue Diagnostics to interrogate the AAR or MPR for point analogue values), then the LCD will display **"Cannot Set Analogue Point Sensitivity"**.

(2) The AAR software must support reception of the sensitivity data, otherwise a full database transfer to the AAR will result.

(3) All MPRs support reception of sensitivity data.

8.3.4 ANALOGUE LEVEL VERSUS SMOKE DENSITY

Analogue smoke detectors measure the amount of smoke in their chamber and convert it to a number. This number is sent to the AAR or MPR, and processed to determine what condition exists.

The analogue responder compares the current number returned by the detector with a heavily filtered historical number, thereby cancelling the effects of contamination. The result of the comparison is an indication of the actual amount of smoke detected. When the difference exceeds the programmed sensitivity setting an alarm condition is annunciated.

The sensitivity setting for a detector can be adjusted to allow it to respond to smoke sooner, or alternatively, to respond to smoke later, e.g. to reduce the effect of phenomena that produce conditions similar to smoke.

To **increase** the detector sensitivity to smoke (i.e. generate alarm earlier), the sensitivity setting is **decreased**.

To **decrease** the detector sensitivity to smoke (i.e. generate alarm at a higher level of smoke), the sensitivity setting is **increased**.

The analogue thermal detectors return numbers that correspond to temperature. An alarm is generated when the measured temperature exceeds the programmed sensitivity setting. In addition, Type A detectors monitor the rate that the temperature is rising, and if it exceeds the programmed limit for Rate of Rise, an alarm condition is annunciated.

ANALOGUE LEVEL VERSUS SMOKE DENSITY (CONT'D)

F4000 FACTORY DEFAULT SENSITIVITY SETTINGS (1)					
	DEFAULT			ALTERNATIVE	
DEVICE	PRE-ALARM	ALARM	RATE OF RISE	PRE-ALARM	ALARM
C7xA	0.35MICX	0.42MICX	-	0.19MICX	0.27MICX
P7xA	5.4%/m	7.1%/m	-	5.4%/m	7.1%/m
C131A	0.33MICX	0.39MICX	-	0.19MICX	0.23MICX
P131A	6.4%/m	8.0%/m	-	4.9%/m	6.0%/m
T131A-A	50°C	63°C	14C/min	-	-
T131A-B	50°C	63°C	0C/min (2)	-	-

Note (1): These defaults are based upon the results of approval tests in a standard smoke room.
Note (2): A Rate of Rise setting of zero disables Rate of Rise monitoring.

The approved sensitivity settings for the C7xA and P7xA EWD detectors are as per the table above.

The P7xA detector can be used in AS1668 systems so long as it has a sensitivity less than or equal to 10%/m and is not used for Return Air or Spill Air ducts.

The sensitivity settings for the C131A and P131A 130 series smoke detectors are also as per the table above, but in addition they have an approved range of settings as noted below (based on AS1603.2 sensitivity classification).

DETECTOR	APPROVED SENSITIVITY RANGE	
	HIGH	NORMAL
C131A	0.15 to 0.31 MICX	0.39MICX
P131A	5.2 to 9.0%/m	NOT PERMISSIBLE

Note that the performance of detectors may be affected by air velocity, temperature, altitude and applied voltage.

The C7xA and C131A detectors cannot have their sensitivities set greater than 0.99 MICX.

The P7xA detector cannot have its sensitivities set greater than 12.9%/m.

The P131A detector cannot have its sensitivities set greater than 12.0%/m.

The T131A-A and T131A-B detectors cannot have their fixed temperature sensitivities set greater than 99°C. In addition, the T131A-A cannot have its rate of rise sensitivity set to greater than 99C/minute.

8.4 POINT ISOLATION

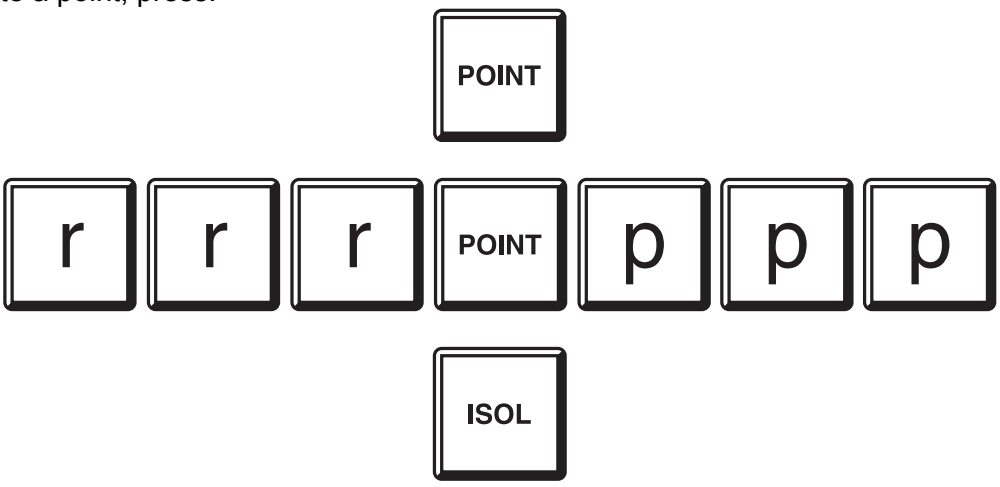
8.4.1 FUNCTION

Allows an operator to isolate points on an MPR. The isolation status is stored and maintained at the MPR, and is recallable on the FIP display.

An isolated point continues its normal operation, except that its status does not affect any circuits or zones.

8.4.2 OPERATING SEQUENCE

To isolate a point, press:



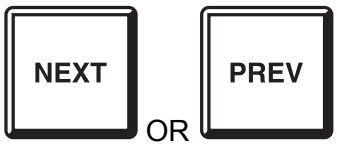
where rrr is the responder number
ppp is the analogue point number

The LCD displays the current alarm, fault and isolate status for the point. To change the isolate state, press:

The display will show that the command has been sent to the MPR.

When confirmation has been received from the MPR, the LCD display reverts to a point status display. It may take a few seconds for the new point isolate status to be shown.

The point selected can be stepped forwards or backwards by pressing:



8.4.3 NOTES

(1) The LCD will immediately display a "Responder type cannot isolate points" message if the point is on a responder NOT configured for point isolation. The LCD will display a "Responder ignored isolate/de-isolate cmd" message if an isolate/de-isolate command is not confirmed (usually due to misconfiguration of the system).

(2) Point Isolation status is stored in the MPR's database, and may be lost if the MPR is powered down for a long period. If this happens, all points become de-isolated.

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9 PLACING INTO OPERATION

9.1 GENERAL

This chapter describes the correct procedure to place into operation a correctly aligned and adjusted F4000 LCD FIP.

Before undertaking any activities, inspect the cabinet interior and check that all panel equipment is securely mounted, and that all cables are connected at the appropriate points.

The FIP's main components are accessed when the inner door is opened.

(a) MAINS POWER SUPPLY/BATTERY CHARGER

A modular unit capable of supplying power to run the FIP, attached Responders, auxiliary devices, and to charge standby batteries as required by AS1603.4 and NZS4512.

(b) MAIN CONTROL BOARD

Contains all the FIP processing power and interfaces to all system inputs and outputs, for example:

i. Communication links to the Responders, RZDUs, programming terminal, etc.
ii. Output status data to the FIP indicators, relays to signal the Brigade, start bells, control ANCIL 0 relay, etc.
iii. Inputs from the FIP keypad.

(c) LCD KEY BOARD

Provides a 30 key keypad for operator / Brigade control of the FIP, plus 8 LEDs indicating the state of selected common and supervisory outputs (eg - MAINS ON, SYSTEM FAULT, etc.), and an LCD display.

(d) LED DISPLAY BOARD

A module used to display the ALARM, FAULT and ISOLATE conditions of up to 16 zones. 64 zones can be displayed per 7U module and the total number of zones per cabinet will depend on the cabinet size. The ALARM, FAULT and ISOLATED conditions of each zone are indicated by separate LED indicators.

(e) NZ MODE DISPLAY EXTENDER BOARD

A module fitted to New Zealand mode FIPs only. This provides the extra NORMAL, FIRE and DEFECT indications, and other output and inputs required for New Zealand mode operation. It mounts in the same manner as a standard F4000 display board.

9.2 MAINS ISOLATE SWITCH

To switch the F4000 LCD FIP panel ON or OFF, first open the front protective door and the inner display door.

The "MAINS ISOLATE SWITCH" is located at the top left hand side of the cabinet rear, to the left 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 it should only be turned OFF (ie MAINS ISOLATED), when testing that the FIP will run on batteries, or by maintenance personnel.

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

9.3 POWER UP

To place a correctly installed F4000 LCD FIP into operation, perform the following steps:

STEP 1 Ensure that the Mains Isolate Switch is OFF.

STEP 2 Ensure that 240 VAC is available to the panel from the mains distribution switchboard.

STEP 3 Turn the Mains Isolate Switch ON.

STEP 4 For a New Zealand mode FIP the "NORMAL" LED should be off and the "FIRE" LED should be flashing. The "CHGR/BATT FAULT" and "DEFECT" LEDs should also be flashing.

Pressing the "ACK" key followed by the "RESET" key should turn off the "FIRE" and "CHGR/BATT FAULT" LEDs. The "DEFECT" LED should remain flashing.

STEP 5 Check that the keyboard green "MAINS ON" LED indicator is illuminated.

The LCD should be displaying the a "Powering Up" message, the time and date and any programmed system name.

Wait until the "Powering Up" message is replaced by the software version number. For a New Zealand mode F4000, the "NORMAL" LED should be ON flashing, and the "DEFECT" LED should be OFF. Note that if Battery Disconnect monitoring is enabled, there will be a Battery Disconnect fault present until the batteries are connected.

STEP 6 Perform a System Test.

STEP 7 Install Batteries.

STEP 8 Perform a Battery Test.
If Battery Test fails; check battery connections; if battery flat, leave for 24 hours and retest.

9.4 COMMISSIONING CHECKLIST

The following commissioning checklist should be copied and completed upon commissioning of the F4000 FIP LCD. It should be placed with other System Configuration Information.

9.4.1 CABINET

A)	Cabinet colour - Standard Cream Wrinkle (BFF 998 CW)…….....	
	- Other.....……..……..	
B)	Cabinet undamaged (Paint OK).....……...	
C)	Doors aligned OK.....……..	
D)	Windows undamaged and fitted correctly.....……..	
E)	MCP fitted and undamaged.....……..	
F)	Cabinet Door locks firmly.....……..	
G)	Key Lock - 003 Type.....……..……	
	- Other: Specify.....……	
H)	Two Keys Supplied.....……..	
I)	Cabinet Sealed - To dust level only (check top entries)...……..	
	- To other: Specify.....……..	
J)	Display Window undamaged and fitted correctly.....……	

9.4.2 POWER SUPPLY

A)	Number of Power Supplies Fitted (1 to 3).....		
B)	- If more than 1, Configuration Master/Slave/Slave OK.....		
C)	Mains Wired correctly, Cover secured.....		
D)	"Mains Isolate Switch" and "Mains Earth" labels fitted.....		
E)	Mains Earth wired correctly and securely fitted.....		
F)	AC Fuse F1; Fitted and Rated at 5.0 A.....		
G)	+VBF Fuse F2; Fitted and Rated at 1.6 A.....		
H)	Bells Fuse F3; Fitted and Rated at 1.6 A.....		
I)	+VNBF Fuse F4; Fitted and Rated at 1.6 A.....		
J)	Mains Voltage Level - 240 VAC +6% -10%.....		VAC
K)	Charger Voltage at Batt + (27.25 - 27.35 VDC).....		VDC
L)	Quiescent Panel Current (FROM BATTERY).....		A
M)	Panel ALARM current (TWO ZONES, FROM BATTERY).....		A
N)	Battery Fitted - Type..... : Rating		AH
O)	Battery Test Resistors Removed (NZ Panels Only).....		

9.4.3 MAIN BOARD

A)	Fitted correctly and securely on standoffs.....	
B)	Main PSU Loom fitted correctly.....	
C)	PSU Monitor FRC Loom fitted correctly.....	
D)	Display Board FRC Loom fitted correctly.....	
E)	LCD/Keyboard FRC Looms fitted correctly.....	
F)	MCP wires fitted to J18 (MCP).....	
G)	Microswitch wires fitted to J40 (Inner Door).....	
H)	If fitted, Outer Door switch wired to J41.....	
I)	Earth wires fitted correctly (2 off).....	

9.4.4 DISPLAY(S) / KEYBOARD

A)	Total Number of Display Boards : _____ fitted OK.....……..	
B)	Display LEDs aligned OK and all intensities similar .....…….	
C)	Indicators hard against display window .....……..	
D)	FRC connectors secure .....……..	
E)	"Last Board Link" in place .....(NOT APPLICABLE NZ MODE)……..	
F)	Zone Identification Label fitted behind display .....…….	
G)	Unused display windows masked with paper .....……..	
H)	System Status LEDs on Keyboard aligned OK .....……	
I)	Command Key Label/Mylar undamaged and fitted correctly ..……	
J)	Keypad Operation OK .....……..	
K)	NZ Display Extender Fitted (NZ Panels Only) .....……	

9.4.5 OPERATION

A)	Normal Operation - Only "MAINS ON" LED ON	
	Plus NORMAL Indicator (NZ Mode Only)	
B)	System Test OK.....	
C)	Battery Test OK	
D)	Display Test OK	
E)	Bell Test OK	
F)	FIP MCP Programmed to Zone 1; Other: _____OK	
	RZDU MCPs Programmed to 1:Z____ 2:Z____ 3:Z____ 4:Z ____ 5:Z____ 6:Z____ 7:Z____ 8:Z ____	
G)	"ALM" LED on MCP Zone flashes & pulsed tone sounder	
H)	Local Bells Operated	
I)	Bell Isolate function and indication OK	
J)	Sounder operates on alarm & fault OK	
K)	"RESET" clears ALARM condition OK	
L)	Standby, Fault, Isolate, Alarm Relays operate OK	

9.4.6 INSTALLATION CHECKLIST

A)	All detectors listed in Appendix A	
B)	Number of detectors per circuit not exceeded	
C)	Detectors suitable for environment installed in	
D)	Detectors and FIP located according to standards	
E)	Measure and Record AZC alarm & fault voltages	
F)	Open and Short circuit each EOL - fault & alarm as approp?.....	
G)	Zone test all AZC	
H)	Switch on/off AC 5 times - No false alarms	
I)	All detectors generate alarm on correct zone	
J)	All MCPs generate alarm on correct zone	
K)	All Ancillary Control Zone outputs tested	
L)	MAF test to Fire Control Station	
M)	All zones labelled according to location / function	
N)	Australian or New Zealand Mode	
O)	New Zealand Mode - Display Extender	
	- Brigade Connections OK	
	- Silence Alarms OK.....	
	- Trial Evacuation Operates Bells OK.....	
	- RZDU Silence Alarms and Trial Evacuation .(if applicable)	
	- External Defect OK.....	
	- External Evac Defect OK.....	
	- Lamp Test OK.....	
	- LEDs & Ancillary Outputs NORMAL OK.....	
	FIRE OK.....	
	DEFECT OK.....	

9.4.7 FINAL CHECK

A)	As Installed Information Drawings Provided	
B)	As Installed Configuration Parameters provided	
C)	Installation Info completed on Pg ii of Operator's Manual.....	
D)	Presentation (Interior neat, clean)	
E)	Vigilant Rating Label completed	
F)	System Configuration Manual provided	
G)	Operator's Manual Provided (STANDARD)	
H)	Technical Manual Provided (OPTIONAL)	
I)	Log Book Provided (Commissioning Details Entered)	
J)	Copy of this check list Completed	
K)	Panel Serial Number	
L)	Main Board Serial Number	
M)	PSU PCB Serial Number	
N)	Keyboard Serial Number	
O)	Display Board(s) Serial Number(s)	

COMMISSIONING CHECKLIST COMPLETE => PASSED

- Date of Test: _____
- Name of Tester: _____
- Signature: _____
- Owner Representative: _____
- Signature: _____

9.4.8 FAULT LIST

10 SYSTEM MAINTENANCE & TROUBLE SHOOTING

10.1 SYSTEM MAINTENANCE

The F4000 System is designed for high reliability and minimum maintenance.

In Australia, however, in order to comply with the requirements of AS1851.8, the owner/occupier (or a nominated representative) must carry out system tests on a regular basis.

In New Zealand, regular testing must be carried out to comply with NZS4512 parts 402 and 403.

10.1.1 WEEKLY TESTING - AUSTRALIA

The recommended procedure for weekly testing is:

STEP 1: Advise the local Fire Control Station, if required, that you are about to undertake a routine test of the fire system. Inform all building occupants that the fire bells will be tested.

STEP 2: Perform an LCD display/LED test.

STEP 3: Test ONE alarm zone.

- Verify that: (a) Bells are Operated.
  (b) Alarm Signal is received by the Fire Control Station.

STEP 4: Perform a Battery Test.

STEP 5: Record the results of these tests in the Log Book.

STEP 6: Inform the local Fire Control Station and all others concerned that the test is concluded.

10.1.2 MONTHLY TESTING - AUSTRALIA

In addition to the single zone test in Weekly Testing described above, (step 3), perform the following:

STEP 1: Initiate a System Test.
This tests that all common paths for alarm and fault information are working correctly, and that all inputs are capable of detecting alarm and fault signals.

STEP 2: Initiate a Zone Alarm Test on one or more zones. This checks that the brigade can be signalled, that the particular zone(s) tested operate correctly and that the common modules processing alarms operate correctly. Choose a different zone each month.

STEP 3: Initiate a Zone Fault test on one or more zones.
This checks that the brigade can be signalled (if wired), that the particular zone(s) tested operate correctly and that the common modules processing faults, including the turning on of individual fault LEDs and turning on the fault buzzer, operate correctly. Choose a different zone each month.

STEP 4: Check the Database for Validity.
Recall the Database CRC and last change date/time (refer Section 6.14), and compare these with the values recorded in the log book. If they are not the same then the database has been changed and may need to be validated and saved.

STEP 5: Check that there are no loop faults, system faults.
This checks that all common paths for transmission of alarms and faults are operational.

STEP 6: Visually inspect the cabinet and panel to ensure it is clean, operable and intact. Inspect the dust seal, and ensure that it is undamaged.

NOTE: If there are Sub-Indicator Panels, RZDUs, Mimics, Repeater Panels, etc; these also require testing and inspecting.

10.1.3 ANNUAL TESTING - AUSTRALIA

Australian Standard AS1851.8 requires that all fire detection and alarm systems be thoroughly tested each year by a competent service/maintenance company.

The service/maintenance company should ensure that the performance of the procedure set out in AS1851.8 is witnessed by the owner of the F4000 System installation, or their authorised agent.

10.1.4 MONTHLY & ANNUAL TESTING - NEW ZEALAND

New Zealand Standard NZS 4512 specifies the tests to be done monthly and annually.

This is normally carried out by approved fire alarm contractors.

10.1.5 SYSTEM REPAIR

If the F4000 System develops a fault condition which cannot be solved by following Basic Trouble-Shooting, please call your maintenance company.

It is strongly advised that "ON SITE" repair of the F4000 boards or responder units should not be done.

Replace any suspected faulty boards/modules.

10.2 TROUBLE-SHOOTING

10.2.1 PRELIMINARY INVESTIGATIONS

To prevent unnecessary service calls, or in the event of a genuine call, to save time and provide the service company with accurate data the owner/occupier can carry out the following checks before requesting service:

a) UNWANTED ALARMS: Make a note of the affected zone(s). It will also be helpful if you record the time of the unwanted alarm.

b) FAULTS: If the fault sounder operates, make a note of all indicators alight at the time. Press the "ACK" key to silence the fault sounder if necessary. Note that doing so will automatically clear any fault action text displayed.

The LCD keyboard has a number of commands to allow the source of a fault or alarm to be determined i.e.

- **Zone Status Searches** (refer Section 7.6.3) allow an operator to determine the source of zone alarms, faults and other off-normal conditions.

- **System Fault Recall** (refer Section 6.6) displays the individual faults that cause the "SYSTEM FAULT" LED to turn on.

- **Recall History** (refer Section 6.8) allows an operator to review recent events at the FIP to further clarify the off-normal events e.g. to determine the particular circuit that put a zone into fault, or to determine the chronological order of events.

- **Point Status Searches** (refer Section 8.1.5) allow an operator to determine the status of points and to search for offnormal points in the system, e.g. fault, alarm, pre-alarm, dirty alert, etc.

Table 10.1 gives a summary of typical fault conditions, reasons, and suggested actions to be taken.

TABLE 10.1
Trouble-Shooting

CONDITION	REASON	ACTION
"MAINS ON" LED OFF	MAINS SWITCH OFF REPORTED POWER BLACKOUT	Turn Mains Switch ON Check that LED turns ON when power is restored
	ACCIDENTAL TRIPPED CIRCUIT BREAKER	Reset Circuit Breaker & check "MAINS ON" LED
	NONE OF ABOVE	CALL SERVICE COMPANY
LED STEADY – "CHARGER HI/LO"	CHARGER VOLTAGE HIGH - Damage to Battery Possible	CALL SERVICE COMPANY
	CHARGER VOLTAGE LOW - Battery will not charge correctly	
LED FLASHING – "BATTERY FLT"	BATTERY DISCONNECTED	Re-connect Battery leads
	BATTERY CHARGE LOW OR BATTERY TEST FAIL	Check Again in 24 Hours
	BATTERY MALFUNCTION	CALL SERVICE COMPANY
"SYSTEM FAULT" LED ON	WATCHDOG DISPLAY FAULT SOFTWARE FAULT on FIP RZDU FAULT on FIP LOOP FAULT on FIP SCAN FAIL on RZDU	CALL SERVICE COMPANY Refer Section 6.6 to use SYSTEM FAULT RECALL to determine cause.
ANCILLARY CONTROL ZONE IN FAULT - Cannot clear on reset	Ancillary Output Circuit is open circuited	Check Load Device Check Terminal Wiring Check External Wiring CALL SERVICE COMPANY
	Ancillary Relay faulty or shorted	
ZONE IN FAULT - Cannot clear on zone reset	FAULTY DETECTOR FAULTY EOL WIRING FAULT	CALL SERVICE COMPANY
NORMAL LED OFF (New Zealand Only)	Zone Alarm or Fault Write Protect Link in Write Enable Position System Fault Exists Processing Disabled	CALL SERVICE COMPANY

10.2.2 PREVENTION OF FALSE 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 exists, indicating either the actual presence of a fire or the immediate likelihood of an outbreak.

Detectors monitor a number of phenomenon, which include smoke, heat, flame, pressure, or the presence of combustion products such as gases. However, some or all of these conditions may appear in different locations when there is no fire present. 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 partitions, 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.

It is therefore highly recommended that the service company be notified of any proposed physical, environmental or occupancy changes.

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APPENDIX A

A.1 MPR ACTUATING DEVICE COMPATIBILITY

A.1.1 MPR IN EWD MODE

Device Type	Max. No Per Line	Max No. Per Loop
C71A/C72A/C73A	40	200
P71A/P72A/P73A	40	200
ADU002	40	200
ADU003A	40	200
ADU004A	40	40
ADU006	40	40
Z54A	40	200

The actual maximum number of devices and types per line/loop depends on the mixture of types, cable type and cable length. Refer to the F4000 Product Manual Volume 9-2, MPR Engineering Manual for further information.

A.1.2 MPR IN 130 SERIES MODE

Device Type	Max. No Per Line	Max No. Per Loop
C131A	40	99
P131A	40	99
P133A	40	99
T131A - A OR B	40	99
ADC130	40	99
ADM130/1/3	40	99
Z134A	40	99

The actual maximum number of devices and types per line/loop depends on the mixture of types, cable type and cable length. Refer to the F4000 Product Manual Volume 9-2, MPR Engineering Manual for further information.

Note that the 130 Series mode cannot be selected for MPRs with Version 1.X software.

A.2 AAR ACTUATING DEVICE COMPATIBILITY

Device Type	Max. No Per Line	Max No. Per Loop
C71A/C72A/C73A	40	200
P71A/P72A/P73A	40	200
ADU002	40	200
ADU003A	40	200
ADU004A	40	40
ADU006	40	40
Z54A	40	200

The actual maximum number of devices and types per line/loop depends on the mixture of types, cable type and cable length. Refer to the F4000 Product Manual Volume 6-2, AAR Engineering Manual for further information.

Note that Z54A devices must be configured as ADU002 devices on AARs.

A.3 ADR ACTUATING DEVICE COMPATIBILITY

The following detectors, as well as hard contact devices, are compatible with the F4000 System ADVANCED DETECTOR RESPONDER. The maximum number of detectors per circuit is indicated by the columns for the 4mA ADR (FP0523 and FP0755 ADR-M), and 2.5mA ADR (FP0472), with the end of line device keys being represented by P for Pulsing (EOL002Z) or R for Resistive (39kOhm). IS represents Intrinically Safe (see note 3).

DETECTORS CERTIFIED WITH F4000 FIP		MAX NO. ADR-M ONLY	
TYPE	DESCRIPTION	P	R
MD614	HEAT DETECTOR	40	2
MF614	IONISATION DETECTOR	40	1
MR614	PHOTOELECTRIC DETECTOR	40	1
MR614T	HIGH PERFORMANCE DETECTOR	40	1
MU614	CARBON MONOXIDE DETECTOR	40	2
ALL WITH M614 BASE			

Table I
Minerva Range & ADR-M

DETECTORS CERTIFIED WITH F4000 FIP (SSL # 131)		MAX NO.			
TYPE	DESCRIPTION	4mA P	2.5mA P	4/2.5 R	IS
B111B	BEAM TYPE SMOKE DETECTOR (SEE NOTE 7)	40	40	40	0
B21B	BEAM TYPE SMOKE DETECTOR	1	1	0	0
C23B *&	IONISATION SMOKE DETECTOR	40	25	1	0
C23BEx *	IONISATION SMOKE DETECTOR (IS)	40	25	1	20
C24B	IONISATION SMOKE DETECTOR	40	25	1	0
C29B	IONISATION SMOKE DETECTOR	40	40	2	0
C29BEX	IONISATION SMOKE DETECTOR (IS)	40	40	2	40
C75B	IONISATION SMOKE DETECTOR	40	40	4	0
FW81B	HEAT DETECTOR CABLE FW68 (IS)	1	1	1	1
P24B	PHOTOELECTRIC SMOKE DETECTOR	40	25	1	0
P29B	PHOTOELECTRIC SMOKE DETECTOR	33	20	1	0
P61B *	PHOTOELECTRIC SMOKE DETECTOR (REV J)	40	10	0	0
P75B	PHOTOELECTRIC SMOKE DETECTOR	40	40	1	0
P76B	PHOTOELECTRIC SMOKE DETECTOR NON-LATCHING	18	12	1	0
R23B &	INFRARED FLAME DETECTOR	30	19	4 with DCA 001	0
R24B	DUAL SPECTRUM INFRARED FLAME DETECTOR	13	3	0	0
R24BEX +	DUAL SPECTRUM INFRARED FLAME DETECTOR (IS)	13	3	0	3
T54B +	PROBE TYPE E HEAT DETECTOR (IS OR FLAMEPROOF)	40	40	40	40
T56B	HEAT DETECTOR TYPES A, B, C, D (IS WITH 255 BASE)	40	40	40	40
V41B +	ULTRAVIOLET FLAME DETECTOR (NOTES 3, 4, 7, 8)	40	40	40	40
V42B +	ULTRAVIOLET FLAME DETECTOR (FLAMEPROOF - NOTE 3)	40	40	40	0
WITH Z54, Z55B, Z56, Z56N, Z500, Z500N, Z72 OR Z94C BASE AS APPROPRIATE					
DL01191A	BEAM DETECTOR	1	0	0	0

Table II
OLSEN Detector Range

DETECTORS CERTIFIED WITH F4000 FIP (SSL # 131)		MAX NO.		
TYPE	DESCRIPTION	4mA P	2.5mA P	4/2.5mA R
DCA-B-60R	HEAT DETECTOR TYPE A	40	40	40
DCA-B-90R	HEAT DETECTOR TYPE C	40	40	40
DCC-A	HEAT DETECTOR TYPE A	40	40	3
DCC-C	HEAT DETECTOR TYPE C	40	38	1
DFE-60B	(DFB-60B) HEAT DETECTOR TYPE B	40	40	40
DFE-90D	(DFB-90D) HEAT DETECTOR TYPE D	40	40	40
SIF-A	IONISATION SMOKE DETECTOR	40	40	4
SIH-AM	IONISATION SMOKE DETECTOR	40	40	4
SLK-A	PHOTOELECTRIC SMOKE DETECTOR	40	40	1
SLG-AM	PHOTOELECTRIC SMOKE DETECTOR	40	40	1
HF-24A	ULTRAVIOLET FLAME DETECTOR	17	3	0
DCD-A	HEAT DETECTOR	40	-	-
DFJ-60B	HEAT DETECTOR	40	-	-
DCD-C	HEAT DETECTOR	40	-	-
DFJ-90D	HEAT DETECTOR	40	-	-
SIJ-ASN	SMOKE DETECTOR	40	-	-
SLR-AS	SMOKE DETECTOR	40	-	-

Table III
HOCHIKI Detector Range

ADR ACTUATING DEVICE COMPATIBILITY - NOTES

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

2) Detectors shown in brackets have the same characteristics as the current models.

3) For use in **HAZARDOUS AREAS**, detectors must be used in conjunction with intrinsically safe, approved and compatible isolators, or must be flameproof. In both cases, special wiring practices are required. The numbers quoted are for a 2.5mA ADR using an EOL002Z EOL. The maximum allowed in a particular application may be less than the number shown, depending on the type of hazard and the inductance and capacitance of the circuit.

4) Detectors indicated by a **"+"**, which are used in **HOSTILE CLIMATIC ENVIRONMENTS**, may be directly connected to the panel if they are not required to be intrinsically safe.

5) Detectors marked **"*"** are obsolete should not be used in new installations.

6) Detectors indicated by a **"&"** normally use an incandescent lamp which will have a low intensity when used with this panel. Contact supplier for a replacement LED kit.

7) The B111B beam and V41B/V42B flame detectors require power from the fused +24 VDC supply.

8) Hard Contact device resistance must be less than 215 Ohms (i.e. reduce line voltage to less than 1.85 volts), to bypass AVF, if it is selected.

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APPENDIX B

COMPATIBLE BATTERIES

The following series of batteries are compatible with the F4000 FIP:

(a) Sonnenschien A200 series Up to 20 AH

(b) Sonnenschien A300 series Up to 24 AH

(c) Power-Sonic PS12 series Up to 24 AH

(d) Yuasa NP Series Up to 24 AH

Note: The Amp Hours (AH) indicated are the maximum size that can be fitted in the main cabinet. Larger batteries may encroach on Brigade Interface Units.

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APPENDIX C
FFCIF TYPE 2 FIRE FIGHTERS GUIDE

The F4000 LCD FIP is configurable for Type 2 operation i.e. global acknowledgement, reset and isolation of zones in alarm.

If the FFCIF is configured to be Type 2, the standard FFCIF Type 3 Fire Fighters Guide must be amended to add instructions for the enhanced operation.

To do so, remove the following FFCIF Type 2 Fire Fighters Guide from the manual, and cut to size to fit over the FFCIF Type 3 Fire Fighters Guide in the front of the manual.

Tape the FFCIF Type 2 guide over the FFCIF Type 3 guide. It is recommended that the taping be done in such a way that access to the FFCIF Type 3 guide is still possible, as use of the Type 3 features is still available.

FIRE FIGHTERS GUIDE - FFCIF TYPE 2

1. ACKNOWLEDGING ALARMS

Press "ACK" key once.

- The local sounder will silence but the alarm bells will continue to ring. Press Bells Isolate, if required, to stop the bells ringing.

2. RESET/ACKNOWLEDGE ALL ZONES IN ALARM

Press "RESET" key once.

- Flashing/Steady "ALM" LEDs -> OFF
- The LCD will display "No more events in alarm list"
- Any new alarm will cause the bells to ring again and the appropriate zone alarm LED to flash.

3. ISOLATE/ACKNOWLEDGE ALL ZONES IN ALARM

Press "ISOL" key once.

- Flashing "ALM" LEDs -> STEADY
- Alarm Zones "ISO" LEDs -> STEADY
- The LCD will display "No more events in alarm list"

4. VIEW/ACKNOWLEDGE/RESET/ISOLATE

Press the Recall key once.

- The LCD display changes to Type 3 FFCIF mode, which allows individual acknowledgement, reset and isolation of each alarm.

- To change the LCD display to Type 2 FFCIF Global Acknowledgement, Reset and Isolation control, press the RECALL key again.