

Firemax

**Analogue Addressable
Fire Control Panel**

***Installation, Commissioning
and
Operating Manual***

**MASTER
MANUAL**

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Introduction

Firemax Analogue Addressable Fire Panel

The **Firemax** series of analogue/addressable fire control panels provide from 2 to 8 detection loops using the Hochiki ESP protocol. A wide range of compatible field devices is available which, coupled with a versatile PC Configuration program, make a powerful package suitable for most applications.

About this Manual

This manual is intended to provide information to enable the **Firemax** fire control panel to be installed, commissioned and operated. Configuration of the system operation can only be achieved by using the PC upload/download software program, which is described in a separate manual.

It is assumed that persons installing and commissioning the panel and associated components are competent fire alarm system engineers with previous experience of such systems and the relevant legislation.

This manual describes the functions and facilities of the equipment to enable the installer to make full use of the flexibility and versatility that the **Firemax** range offers. However, it is the responsibility of the installer to ensure that only compatible equipment is connected to the panel, and that the completed system complies with the project specification and all applicable standards.

It is recommended that this manual is read thoroughly before attempting to install and operate the panel and field devices

The compatible Hochiki loop devices are described in Appendix A.

System Overview

The **Firemax** range offers from 2 to 8 detection loops, and from 16 to 48 zones providing the scope to accommodate the majority of projects. Each loop can accept up to 127 Hochiki devices comprising any combination of smoke and heat sensors, monitor modules and output devices operating on the ESP protocol. In addition to the field devices, the panel incorporates many standard inputs and output options to enable it to be interfaced with other building services. Further optional input/output modules are available if required.

The standard panel provides four sounder circuits which can be supplemented by additional internal circuits and units located on the loop, which are programmable. A number of sensor base options allow the connection of one or more conventional detectors to the system. By using the appropriate loop module, two zones of conventional detectors can be installed, yet occupy only one address.

The panels have an integral battery charger and space for sealed lead-acid standby batteries (see table 1 on page 10 for maximum battery sizes). All circuits are fully monitored and a comprehensive diagnostic function allows faults to be easily identified and rectified.

Description

General

The standard panel comprises a wall-mounted steel cabinet suitable for surface fixing. Flush mounting bezels are also available. There are three main variations to the panel fascia layout providing 16, 32 or 48 fire zones.

The control switches and indicating LEDs are designed to provide the maximum functionality and information whilst maintaining an easily understood and simple to use format.

The following sections describe the components of the panel, the visual indications and their significance, and the function of the control switches. The panel operation under various alarm and fault conditions is described in subsequent sections.

Main Components

The basic panel comprises one Main Central Processor Unit (MCPU), which is mounted on the switch/display board and attached to the front door of the cabinet. The main system software is located on the MCPU.

Within the cabinet is one or more Detection Circuit Interface (DCI) boards. Each DCI controls two detection loops, and the incoming and outgoing loop cables terminate on this board.

The other standard component is the Input/Output board (HAAN2). This board provides the four internal sounder circuits, and a number of digital inputs for remote control functions, and the monitoring of auxiliary services.

2 to 8 loop panels are fitted with an integral 3A or 5A battery charger and there is space available for a sealed lead-acid standby battery. A remote PSU/charger is available if required.

The optional 40-column printer (AAESP - PRINT) is mounted on the front door of the panel.

Optional Boards

There are boards available which provide the following input/output options:

- 1 16 switched -ve inputs/8 open-collector -ve outputs (IO8)
- 2 8 switched -ve inputs/16 open-collector -ve outputs (IO16)
- 3 8 fully monitored sounder circuits (8PB)

Note. The control panel has the capacity to operate 64 outputs and 16 inputs under full control of the configuration software. More than one type of each board can be fitted to provide the required facilities.

The sounder board uses 8 of the 16 available inputs, therefore the number of boards is limited to 2, i.e. 16 additional sounder circuits.

A separate cabinet may be necessary where additional boards are required.

Panel LEDs

The panel LEDs indicate the status of the system under various conditions and provide instant notification of alarm, fault and other abnormal events. Under certain conditions several LEDs may be illuminated.

System Healthy

A green LED which is normally illuminated to indicate that the panel is on and operating normally.

Common Fire

Two red LEDs which flash when any fire condition is detected and go steady when the alarm is silenced.

Zonal Fire

16, 32 or 48 red LEDs, one of which flashes on the detection of a fire condition in the relevant zone and goes steady when the alarm is silenced.

Fire Routing Activated

A red LED which illuminates steadily when a fire alarm is detected, to indicate that the fire routing equipment relay has activated.

Pre-Alarm

A yellow LED which flashes when an analogue sensor exceeds its normal threshold level, but has not reached the fire level. This may indicate that a fire is imminent.

Control Panel Fault

A yellow LED which illuminates when a serious internal fault occurs within the panel, e.g. CPU Fault.

System Fault

A yellow LED which flashes when a fault on the system is detected and goes steady when the alarm is silenced (accepted). Other fault LEDs may illuminate to indicate a specific fault, e.g. sounders.

Sounder Fault

A yellow LED which flashes when a fault on the integral sounder circuits is detected and goes steady when the alarm is silenced.

Maintenance Fault

A yellow LED which flashes when a sensor's analogue value is outside the expected working limits and may indicate that it is contaminated.

Isolation Active

A yellow LED which illuminates whenever a part of the system is isolated. Other LEDs may be illuminated to indicate the specific isolation.

Remote Signal Isolated

A yellow LED which illuminates to indicate that the fire routing (remote signal) relay is isolated.

Sounder Isolated

A yellow LED that illuminates to indicate that the sounders are isolated.

Test Mode

A yellow LED that illuminates to indicate that part of the system is being tested

Input 1

A yellow LED which illuminates when input D on the HAAN2 board is active. The default text is BATTERY FAULT, which can be redefined via the PC Configuration program.

Input 2

A yellow LED which illuminates when input C on the HAAN2 board is active. The default text is CHARGER FAULT, which can be redefined via the PC Configuration program.

Silence

This LED is associated with the Silence pushbutton and illuminates whenever the button is pressed to silence the external sounders in a fire condition, and the internal buzzer in a fault or isolated condition.

Scroll

This LED flashes to indicate that there is currently more than one alarm or fault condition. The LCD displays the total number of alarms and the number of the one currently displayed.

LCD Display

The LCD is a 2 x 40 character backlit display which provides alarm and status information by identifying the address of the device (if appropriate) and the type of event. The bottom line is user programmable to provide location text. The information is typically displayed as follows:

FIRE ALARM Z: xx A: xx.xxx.x 001/001
CUSTOM TEXT

Where Z = Zone number and A = Address, i.e. Loop.Device.Sub-address (where applicable).

When a number of conditions exist, e.g. fire and fault, etc., the highest priority event is displayed. Event priority is: Fire (highest), Pre-alarm, Fault, Maintenance and Fault 2.

Controls

With the exception of the **Control Enable** key switch, all control switches are pushbutton type. In the normal operating mode the Control Enable switch is 'off' with the key removed. None of the pushbuttons are operable with the Control Enable in this position.

The pushbutton controls are operable when the key is inserted into the Control Enable switch and it is turned to 'on' (quarter turn to the right). The key is not removable in this position.

Silence

This pushbutton is used to mute the external sounders or the internal buzzer when an alarm or other abnormal condition exists. The switch is only operable when the Control Enable is on, and then only when a fire or other condition is present. **It cannot be used to prevent the sounders or buzzer from operating.**

Operation of the switch in a fire condition silences the external sounders and causes the internal buzzer to sound intermittently. Operation of the switch in any other condition changes the continuous buzzer to an intermittent tone.

The associated LED illuminates when the switch is operated to indicate that the condition is 'accepted'. On receipt of a subsequent alarm or other condition, the relevant audible alarm will resound and may be silenced as before.

The alarm or fault LED which is flashing when the event occurs, goes steady when the Silence Alarm switch is operated.

Scroll

When there is more than one alarm or other condition on the system, the LED associated with this switch flashes. Pressing the **Scroll** switch steps to the next event, the details of which are then displayed. Subsequent operation steps to each event in turn, until the first event is again displayed.

The numbers in the top right section of the LCD indicate the total number of events and the current event being viewed, e.g. 002/005 indicates that this is the second event of five current events.

The LED is not illuminated if only one event exists.

Reset

The **Reset** switch is operated to return the system to normal following a fire or other condition. If the alarm or other condition is still present on the system, the panel is re-activated at the end of the reset sequence and the external alarms (if applicable) are re-energised.

To enable the system to reset, the button must be held operated for 4-5 seconds during which time the panel buzzer emits five beeps. The Reset button is inoperable if no events exist.

Evacuate

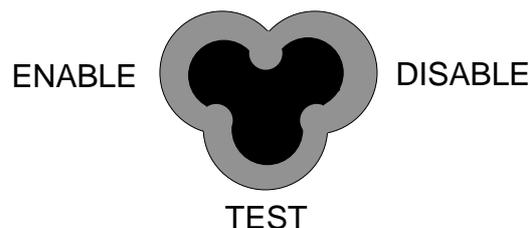
The external sounders are energised by operating the **Evacuate** button. The control is operated to re-sound the sounders after they have been silenced, or to operate them at any time irrespective of whether a fire condition exists (Control Enable must be turned on). The LCD shows MANUAL EVACUATE. The Common Fire and Fire Routing LEDs are illuminated, and the Fire relay and Fire Routing Equipment relay are activated.

The sounders are silenced by operating the Silence Alarm switch, followed by Reset.

Function Switches

In addition to the control switches described, there are two banks of switches arranged in a cluster formation which are used to access system menus and carry out test/isolate and other functions.

The left-hand bank contains three operable buttons which have specific functions, i.e. Enable (Enter), Disable, and Test, arranged as follows:



Enable (Enter)

This button is used to Enable functions that have previously been disabled, and to 'enter' user instructions, e.g. access code number, etc.

Disable

This button is used to disable (isolate) parts of the system including zones, devices, automatic printout, etc.

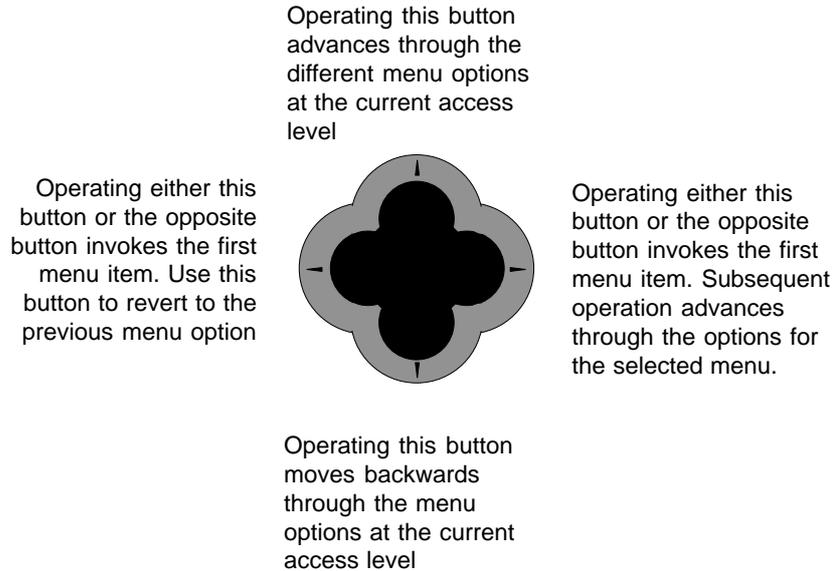
Test

With the panel in its normal operating mode, i.e. no events displayed, operation of the Test button (Control Enable turned on) causes all the panel indicators and the LCD to turn on in sequence. During the test the buzzer is active.

The test cancels automatically after a few seconds.

This button is also used to put selected zones into test (walk test) and is used in conjunction with the other function switches.

The right-hand bank comprises four switches with the following functions:



To indicate which button should be pressed when describing the various functions in the Operating section, each button is identified by a ►: either left or right, up or down.

For certain operations, the selection is made via these buttons and the instruction or selection is confirmed by pressing one of the buttons in the other bank. Other buttons are referred to by name in the instructions, e.g. press ENABLE.

Panel Buzzer

The panel buzzer has two modes - continuous and intermittent. It is not possible to completely mute the buzzer when any abnormal condition exists.

Printer

The optional printer enables event and system status information to be printed. The printer can be disabled if required.

Repeaters

Up to 16 repeaters (AAESPR-16/48) can be connected to the panel via a 4-core loop, and provide full system control and indication facilities. To enable the connection of a repeater, an optional interface PCB is required in the control panel.

Panel Inputs

The HAAN2 board fitted in each control panel provides a number of inputs that can be used for the remote monitoring and control of various functions as follows:

Evacuate

Shorting the Evacuate terminals causes all the sounders connected to the system to operate in continuous mode, thereby facilitating an evacuate command from a remote location via a switch or similar device. The internal buzzer sounds intermittently. Sounders are silenced, and the system is reset in the normal way.

Security Alert

Shorting the Security Alert terminals causes all the sounders connected to the system to pulse and the buzzer to sound continuously. The default text for this input is BOMB ALERT. Sounders are silenced, and the system is reset in the normal way.

Inputs A-J

Each of these inputs requires a connection to 0V to activate it. The 0V may be derived from the auxiliary output terminals, and switched via a suitable voltfree contact onto the relevant input/s. On inputs where the buzzer is activated, it is not possible to silence the buzzer until the input signal is removed. All auxiliary activations require resetting to return the system to normal.

Input A

This input has a direct connection to the internal buzzer and therefore activates the buzzer when an 0V signal is applied, or can transmit a signal to a remote buzzer or other device when the panel buzzer is active.

Input B

Applying an 0V signal to this input causes the panel to reset, thereby providing a remote reset facility.

Input C

When this input is active a Fault condition is generated, and Input 2 LED is illuminated. The default text is CHARGER FAULT, which can be redefined via the PC Configuration program.

Input D

When this input is active a Fault condition is generated, and Input 1 LED is illuminated. The default text is BATTERY FAULT, which can be redefined via the PC Configuration program.

Input E

When this input is active a Fault condition is generated. The default text is

BATTERY FAULT, which can be redefined via the PC Configuration program.

Input F

When this input is active a Fire condition is generated causing the Common Fire LEDs and the Fire Routing relay to be operated. The default text is EXTINGUISHANT RELEASED which **cannot** be redefined.

Input G

When this input is active a Fault condition is generated. The default text is EXTINGUISHER FAULT which **cannot** be redefined via the PC Configuration program.

Input H

When this input is active a Disablement condition is generated causing the Isolation Active LED to illuminate. The default text is EXTINGUISHER DISABLED which can be redefined. The fault contact is not operated and the system does not require a reset, the panel reverting to normal operation when the input is de-activated.

Input J

When this input is active a Fault condition is generated. The default text is EARTH FAULT which can be redefined via the PC Configuration program.

Note. Inputs E to J activate the additional auxiliary LEDs, if fitted.

Panel Outputs

The following voltfree outputs are available:

Alarm Contact

Activates when a Fire alarm condition occurs and de-activates when the sounders are silenced.

Fire Routing Contact

Activates when a Fire alarm condition occurs and remains activated until the system is reset. Can be disabled (isolated) via a menu option accessed by the function keys.

Fire Contact

Activates when a Fire alarm condition occurs and remains activated until the system is reset. Cannot be isolated.

Fault Routing Contact

Activates when a Fault condition is detected and remains activated until the system is reset. Can be disabled (isolated) via a menu option accessed by the function keys.

Fault Contact

Activates when a Fault condition is detected and remains activated until the system is reset. Cannot be isolated.

Reset Output

Activates when a lamp test is performed.

Sounder Outputs

There are four individually fused sounder outputs on the HAAN2 board which operate continuously as a general alarm.

It is possible to isolate alarm outputs via the menu options at access level 3.

Aux. 24V

A 24V supply is available for auxiliary functions. The supply is rated at 500mA and is fused. Failure of the fuse causes a FUSE FAULT indication.

Maximum Battery Sizes

Part No.	Loops	Zones	PSU	Max. internal battery size	Min. battery required (24 hours)
FCP AAESP2-16E	2	16	3A	7Ah	7Ah
FCP AAESP2-16	2	16	5A	15Ah	12Ah
FCP AAESP2-32	2	32	5A	15Ah	12Ah
FCP AAESP4-32	4	32	5A	15Ah	12Ah
FCP AAESP4-48	4	48	5A	15Ah	15Ah
FCP AAESP6-48	6	48	5A	15Ah	15Ah
FCP AAESP8-48	8	48	5A	15Ah	15Ah
FCRP AAESP6-16	Repeater	16	3A	7Ah	6Ah
FCPR AAESPR-32	Repeater	32	3A	7Ah	6Ah
FCPR AAESPR-48	Repeater	48	3A	7Ah	6Ah

Table 1

Note. Remote power supplies up to 20A are available

Installation

Important - Read this section first!

Safety

Suppliers of articles for use at work are required under section 6 of the Health and Safety at Work Act 1974 to ensure as reasonably as is practical that the article will be safe and without risk to health when properly used.

An article is not regarded as properly used if it is used 'without regard to any relevant information or advice' relating to its use made available by the supplier.

This product should be installed, commissioned and maintained by, or under the supervision of, competent persons according to good engineering practice and:

- (i) IEE regulations for the electrical equipment in buildings
- (ii) Codes of Practice
- (iii) Statutory requirements
- (iv) Any instructions specifically advised by the manufacturer

According to the provisions of the Act you are therefore requested to take such steps as are necessary to ensure that any appropriate information about this product is made available by you to anyone concerned with its use.

This equipment is designed to be operated from 220-240V AC mains supplies and is of class I construction. As such it **must** be connected to a protective earthing conductor in the fixed wiring of the installation.

Failure to ensure that all conductive accessible parts of this equipment are adequately bonded to the protective earth will render the equipment unsafe.

General

Installation of the panel should only be carried out by qualified personnel. The electronic components within the panel can be damaged by static charge. Suitable precautions must be taken when handling circuit boards. **Never** insert or remove boards or components with power on.

Mounting the Cabinet

The site chosen for the location of the panel should be clean and dry, and not subject to shock or vibration. The temperature should be in the range 5 to 35°C, and the humidity should not exceed 95%.

Before mounting the cabinet, the electronic components of the panel should be removed and stored in a safe location.

Firstly, disconnect the ribbon cables between the cabinet and the equipment located on the panel door. Disconnect the three wires from the charger to the

AN2 board, noting their position. Take out the chassis plate after removing the four fixing screws. If necessary, remove the panel door, complete with components, by unscrewing the hinge fixings after first disconnecting the earth strap.

Using the cabinet as a template, mark the position of the four fixing holes, ensuring that the wall is flat at the chosen location. Drill and plug the wall and fix the cabinet using all four fixings.

Cabling

Suitable cables should be brought into the cabinet using the knockouts provided, making sure that tails are long enough to reach the relevant terminals.

The screen or drain wire should be bonded to earth at one location only, and should be continuous throughout the circuit. Drain wires should be terminated in the cabinet as near as possible to the entry point.

Terminals will accept one single or stranded conductor up to 2.5mm².

Power Supply

The panel requires a 220-240V AC supply which should be derived from a suitably labelled, dedicated isolator.

Field Devices

Sensors, call points and input/output devices are supplied with full installation instructions. High voltage testing of the wiring must be carried out **before** any devices are connected.

Commissioning

General

The following procedure will bring the system to an operational state conforming to a basic set of rules which are applied by default when the system is powered up. Configuration of the system must be done by using the PC program, the instructions for which are in a separate manual.

Before the Panel is Powered Up

Once all builders' work is complete and the cabinet is cleared of dust and debris, the electronic components can be re-installed in the cabinet. Install the components in reverse order, ensuring all ribbon cable connections are properly mated. Reconnect the three wires from the HAAN2 PCB to the PSU. Reconnect any earth straps that were previously disconnected.

Ensure the 10K resistors supplied with the panel are fitted to each of the four pairs of sounder circuit output terminals. Temporarily fit a 10K resistor across the battery leads.

Ensure links are fitted to the loop out and return terminals, i.e S1 to RS1 and SC1 to RSC1 (loop 1), and S2 to SC2 and RS2 to RSC2 (loop 2). Repeat for each DCI.

Connect the mains supply cable to the L, E and N terminals on the PSU.

Powering the Panel

Switch on the mains supply to the panel.

The LCD will display the start-up text, which includes the software version number, for a few seconds, following which the STATUS: NORMAL text is displayed.

The System Healthy LED will illuminate. Investigate and rectify any fault conditions before proceeding.

Note. If the system has previously been programmed, fault messages are displayed for all devices that the system is unable to 'find'.

Switch off the mains supply.

External Wiring

Loop Wiring

It is recommended that the loops are connected and checked for faults before connecting the sounder circuits, therefore, remove the links and connect the loop cables to the relevant terminals (+ve to the S and RS terminals). Ensure that loop modules have the appropriate end-of-line device fitted, i.e. 1K resistor on sounder circuits, a 10K resistor on input circuits, and zener diode (part no. TE-RH-E) on conventional zone circuits. Also check that monitor

modules configured for closed circuit monitoring have a link fitted to the terminals. Reconnect the mains supply.

The panel will 'autolearn' the number and type of the loop devices. The software will allocate eight devices per zone, which can be redefined via the PC Configuration program. The number of loops are programmed before shipment.

The panel will not carry out an autolearn if address configurations have already been assigned, i.e. if the system has previously been programmed. Confirm that the loop devices have been accepted and that no faults are indicated before proceeding.

Note. It is necessary to reset the time and date each time the panel is powered up or re-booted.

Sounder Circuits

Sounder circuits are monitored for open and short circuit faults. Sounders must be polarised and suppressed, and a 10K end-of-line resistor is required. Remove the resistor from the output terminals and connect the sounder circuits, observing polarity. Any fault on the circuit is indicated as a Sounder Fault and should be investigated and rectified.

Auxiliary Circuits

Auxiliary input and output circuits can now be connected to the appropriate terminals, either within the panel or to loop modules. Instructions for wiring each loop device are supplied with the device.

Battery Connection

Measure the voltage across the battery leads with the batteries disconnected, and check that the reading is approximately 27.5V.

Connect the leads to the +ve and -ve battery terminals, observing polarity.

Testing the System

The system can now be tested by activating the loop devices and monitoring the response. By default, any fire signal causes all sounder circuits to operate continuously, and the Evacuate switch also operates all sounder circuits. Fault conditions can be simulated by open and short circuiting the wiring, or by removing a sensor from its base.

PC Configuration

The system can now be configured for the required operation. The software program enables devices to be zoned across either of the two loops on a DCI, it is not possible to zone across different DCIs. Each device can be assigned a 40 character text message and the sensitivity of sensors can be adjusted.

Comprehensive cause and effects can be achieved, but it is the responsibility of the programmer to ensure that the system functions in accordance with the specification and British Standards.

Operation

Normal Mode

In the normal operating mode the Supply Healthy LED is illuminated and the display shows the following, e.g.

STATUS: NORMAL XYZ ALARMS LIMITED
--

Note. The display light is normally off and is switched on when an event occurs, or when the Control Enable key is turned on.

There should be no other LEDs illuminated.

In the following paragraphs, the operation of the panel in various alarm and fault conditions is described. The action taken by an operator when an alarm or fault is detected will depend upon the user's procedures, however, recommended actions are given for guidance only.

Fire Alarm

When a fire condition is detected, either by an automatic sensor or manually via call point, the following actions occur:

- The Common Fire LEDs flash
- The relevant zone LED flashes
- The buzzer sounds continuously
- The LCD displays the event details, e.g.

FIRE ALARM Z: 01 A: 01.005 001/001 FIRST FLOOR CORRIDOR

- The internal sounder circuits are energised
- The Fire Routing relay contact operates and the LED is lit
- The Alarm and Fire contacts operate
- Loop devices are activated in accordance with the program
- The event details are printed (if applicable)

Actions

Carry out prescribed fire procedures

- Operate the Control Enable switch to 'on'
- Press the Silence Alarm button
 - the Fire LEDs go steady
 - the buzzer sounds intermittently
 - sounders are silenced

- Investigate and rectify the cause of the alarm
- To re-activate the sounders, press Evacuate
- When the alarm condition is cleared, operate Reset (hold for 5s)

Turn Control Enable to off, and remove key

Operator actions are printed out in addition to event details, assuming a printer is fitted and is enabled.

Pre-Alarm

A Pre-Alarm indication occurs when the analogue value of a sensor rises above its normal operating level, but insufficiently to generate a fire alarm. It can indicate that low levels of smoke have been detected and that a fire is imminent.

When a pre-alarm is detected the following occurs:

- The Pre-Alarm LED flashes
- The buzzer sounds continuously
- The LCD displays the event details, e.g.

**PRE-ALARM Z: 12 A: 01.115 001/001
RECEPTION AREA**

Any programmed actions occur

Actions

- Operate the Control Enable switch to on
- Press the Silence Alarm button
 - the LED goes steady
 - the buzzer sounds intermittently

- Investigate and rectify the cause of the alarm
- Reset the system

Fault

The system is comprehensively monitored for abnormal conditions and a fault can be caused by many different occurrences. The LCD displays information about the likely cause of the fault to aid location. This may be in the form of a code number, e.g. Fault 11 - a list of the fault codes is contained in Appendix B.

When a fault is detected on the system, the following occurs:

- One or more of the Fault LEDs flash
- The buzzer sounds continuously
- The LCD displays the event details, e.g.

**ADDR: FAULT 01 Z: 01 A: 01.034 001/003
ACCOUNTS OFFICE**

The Fault Routing and Fault contacts operate
Any programmed actions occur

Actions

Operate the Control Enable switch to on
Press the Silence Alarm button

- the Fault LED/s go steady
- the buzzer sounds intermittently

Investigate and rectify the fault condition
Reset the system

Maintenance Alert

A Maintenance Alert occurs when the analogue value of a sensor is outside its predicted operating limits during the daily calibration check, and can indicate that the device is contaminated and requires cleaning or replacing.

When this condition is detected the following occurs:

The Maintenance Alert LED flashes
The buzzer sounds continuously
The LCD displays details of the event, e.g

MAINTENANCE 17 Z:12 A: 01.120 001/001 CANTEEN SERVERY
--

Any programmed actions occur

Actions

Operate the Control Enable switch to on
Press the Silence Alarm button

- the LED goes steady
- the buzzer sounds intermittently

Investigate and rectify the condition
Reset the system

Inputs 1 and 2

These are auxiliary inputs that are user defined and can be assigned to certain field monitoring devices. The input causes the same actions as a fault condition, with the exception of the Common Fault LED, but has a lower priority and can be used for non-fire applications, e.g.

AUX. EVENT Z:27 A: 02.086.2 001/001 SECONDARY PANEL FAULT
--

Actions

Operate the Control Enable switch to on
Press the Silence Alarm button
- the buzzer sounds intermittently

Investigate and rectify the condition
Reset the system

Evacuate

The external sounders can be energised at any time by operating this control

Actions

Operate the Control Enable to on
Press the Evacuate button
The LCD displays the action, i.e.

MANUAL EVACUATE	001/001
------------------------	----------------

To silence the sounders, press Silence Alarm
Press Reset to restore the panel to normal operation.

Panel Functions

General

The following panel functions are accessed via the function switches which invoke various menu options. Main menus have sub-menus which can vary depending on the current status of the panel.

Panel functions are at two access levels. Level 2 menus are accessed by turning the Control Enable switch on and pressing the right or left-facing function buttons, of the right-hand bank.

Level 3 menus are accessed via the level 2 menu and require an access code number to be entered (currently 5910).

Generally, pressing the up button advances to the next main menu option, and pressing the down button reverts to the previous main menu option.

Having selected a main menu option, the right and left buttons are pressed to advance through the options for that menu or revert to the previous option.

Note. Alarm and fault conditions override the current display and cancel the operation.

Level 2 Options

1 Isolate (Disable) Zone

- (i) Turn the Control Enable switch on. Press ◀ or ▶ to display the first option:

ZONES/ADDRESS POINTS ->

- (ii) Press ▶

ZONE 01 ENABLED
12 ADDRESS POINTS

This display shows the status of the first zone and the number of devices in the zone. To isolate a zone, press ▲ to scroll through the zones until the required zone number is displayed.

- (iii) Press the DISABLE button (left-hand bank).

ZONE 01 DISABLED
PRESS DISABLE FOR AUTOMATIC ENABLEMENT

This function allows the zone to be isolated for a pre-set period of time after which it will automatically be enabled. If you do not wish to set a time, ignore this prompt and move to the next required action. The designated zone is now isolated and the Isolation Active LED is illuminated.

(iv) To set the automatic enablement time, press DISABLE again:

ZONE	01	DISABLED
SELECT DISABLEMENT TIME	0.5h	

Select a time by pressing ▲. The time advances in half-hour increments. When the required time is displayed, press ENABLE (ENTER):

ZONE	01	DISABLED
AUTOMATIC ENABLEMENT SET		

Line 2 of the message is displayed for 1-2 seconds. The zone remains isolated for the selected time period.

When the Control Enable is turned off, the internal buzzer beeps several times and the Isolation Active LED flashes. The following is displayed and the LED goes steady:

1 ZONE	DISABLED
---------------	-----------------

To de-isolate the zone, repeat steps (i) and (ii) to display the isolated zone, and press ENABLE (ENTER)

2 Isolate Device

To isolate a device, repeat steps (i) and (ii) to display the zone containing the device to be isolated.

(iii) Press ►

ZONE 01 ADDR: 01.001	ENABLED
CUSTOM MESSAGE	

(iv) Press ▲ until the required device is displayed.

(v) Press DISABLE. You are given the option of selecting an

automatic enablement time.

When the Control Enable switch is turned off, the buzzer sounds and the following is displayed:

1 SUPPRESSED DISABLEMENT

The device is now disabled. To re-instate the device, repeat steps (i) to (iv) to display the isolated device, and press ENABLE (ENTER).

3 Test Zone

A zone may be put into test mode. In this mode devices can be activated, and their operation verified, without energising the sounders or operating auxiliary outputs. The device is automatically reset after a few seconds, although the alarm LED is on until either the test is completed, or another device is put into alarm.

Repeat steps (i) to (ii) to display the zone to be tested.

(iii) Press TEST

**ZONE 02 IN TEST CONDITION
NO ALARMS**

The Test Mode LED is illuminated. Devices may now be activated and the results are displayed on the LCD, e.g.

**ZONE 02 PRE-ALARM 01.002 01/02
TEST COND. FIRE 01.002 02/02**

All tests are displayed with the first and last shown by default. Any other tests may be viewed by using the ▲ and ▼ keys

Test activations are recorded on the printer, assuming one is fitted and is enabled.

To exit the test mode, press ENABLE (ENTER). The panel goes through a reset procedure and reverts to normal operation after a few seconds.

Note. Only one zone can be in test at any time.

4 Analogue Value

The current value of an analogue device can be viewed. Repeat steps (i) to (iv) to display the device.

(v) Press ►

ZONE 01 ADDR: 01.001	ENABLED
PHOTO SMOKE ANALOGUE SENSOR	0.0%/M

Note. An analogue value is not displayed for Input/Output Units, Call Points or Addressable bases. The measurement units displayed are, e.g. X = 2.8 for ionisation sensors, and °C for heat sensors.

(vi) Press ◀ three times to revert to the main menu.

5 Isolate Outputs

This facility enables the Fire and Fault Routing relays, and the external sounders to be isolated (disabled).

- (i) Turn Control Enable switch on.
- (ii) Press ▶ to display the main menu menu.
- (iii) Press ▲

CONTROLS ->

(iv) Press ▶

FIRE ROUTING CONTROL ENABLED

- (v) Press DISABLE to isolate the Fire Routing relay
 - (vi) Press ▲ to display the other disablement options, i.e. Fault Routing and Alarm Devices. Disable as required by pressing DISABLE when the relevant option is displayed.

Depending on the output isolated, appropriate LEDs are illuminated and the buzzer sounds.

To view active disablements, repeat steps 5(i) to 5(iii)

(iv) Press ▲

ACTIVE DISABLEMENTS ->

(v) Press ▶

FIRE ROUTING CONTROL DISABLED 001/001
--

Level 3 Options

On entry to access level 3, the following is displayed:

CURRENT ACCESS LEVEL: 3

Note. Turning the Control Enable switch off reverts to level 1 and the above procedure must be repeated to regain access level 3.

1 Isolate Loop/Device

- (i) Press ▲ 3 times

DETECTION LOOPS/ADDRESS POINTS ->

- (ii) Press ►

DETECTION CIRCUIT 01 CONFIGURED
020 ADDRESS POINTS

- (iii) Press ▲ to advance through the loops. To isolate a loop, press DISABLE.
- (iv) The loop is disconnected and the Isolation Active LED is illuminated.

To reinstate the loop, repeat steps (ii) and (iii) to display the isolated loop, and press ENABLE (ENTER).

Note. Loops can be reinstated at access level 2 by selecting Active Disablements and pressing ENABLE (ENTER). Initially, the loops will display 'NOT CONFIG.' until all devices on the loop have been re-initialised.

2 Analogue Data

- (i) From the Current Access Level display, press ▲ 3 times.

DETECTION LOOPS/ADDRESS POINTS ->

- (i) Press ► and select a loop using the ▲ button.
- (ii) Press ► to display the first device on the loop.

Note. The device, or subsequent devices, may be disabled at this stage.

- (iii) Press  to display analogue data for the selected device, e.g.

ZONE 01 ADDR: 01.001	ENABLED
PHOTO SMOKE 042 210 060	

The three values displayed are the actual analogue values returned by the device and represent the Zero Point, Fire Test, and Current values respectively. The values should be within the range indicated in the table below, e.g.

	ALE-E OPTICAL	AIC-E ION	ATD-E HEAT
ZERO POINT	41 to 82	31 to 92	Between 0 and 200
FIRE TEST	162 to 225	156 to 229	240
CURRENT	60	50	120

Table 2

The temperature reading of a heat sensor can be calculated from the returned current value by using the following formula:

$$T^{\circ}\text{C} = \frac{\text{Value} (-20)}{2}$$

3 Disable Circuit Monitors

This function enables various circuit monitoring devices to be disabled if, for instance, a problem exists which cannot be immediately cleared, or as an aid to fault finding.

- (i) From the Current Access Level display, press  5 times, or you can press  3 times:

MONITORINGS ->

- (ii) Press 

ALARM DEVICES MONITOR ENABLED

- (iii) The monitors that can be disabled are viewed by pressing ▲, and are in addition, Power Supply, Earth Fault and Fuse. Display the required option and press DISABLE

The Isolation Active LED is illuminated.

4 Event Register

The panel stores the last 100 events which include activations, isolations and operator actions. The event record can be viewed and/or cleared via this option.

- (i) From the Current Access Level display, press ▼ twice:

EVENT REGISTER ->

- (ii) Press ►

EVENT REGISTER SCROLLING ->

- (iii) The latest event is displayed. Use ▲ and ▼ to scroll the events.
- (iv) From the Event Register display, press ▲

EVENT REGISTER CLEARING ->

- (v) Press ►

PRESS ENABLE TO CLEAR

- (vi) Press ENABLE

EVENT REGISTER CLEARED

5 Printing

This facility enables various printed reports to be produced. It is also possible to disable the printer.

- (i) From the Current Access Level display, press ▼

PRINTINGS ->

- (ii) Press ►

PRESS ENABLE TO PRINT EVENTS

If this option is selected, the event record is printed. The printout can be aborted by pressing DISABLE. At the end of the report the display shows 'End of Printing'.

- (iii) Press ▲

PRESS ENABLE TO PRINT DISABLEMENTS

A printout is produced for all isolated circuits/devices.

- (iv) Press ▲

PRESS ENABLE TO PRINT STATUS

Press ENABLE (ENTER) to print a list of all the devices on the system, showing the device type, the zone number and location text.

- (v) Press ▲

PRESS DISABLE TO DISABLE PRINTER

Press ENABLE (ENTER) to disable the printer. To enable the printer, select the Printings option. The only option available is:

PRESS ENABLE TO ENABLE PRINTER

Press ENABLE (ENTER) to re-instate the printer.

Appendix A

Hochiki ESP Compatible Loop Devices

The following devices are available for use with the **Firemax** range of analogue/addressable fire control panels:

Device	Ref. No.
Standard sensor base	YBJ-RL/2NA
Ionisation sensor	AIC-E
Optical sensor	ALE-E
Heat sensor	ATD-E
Short circuit isolator	SCI/2A
Addressable base	YCA RL/3H2
Master base (Accepts up to five:- Base)	YCA-RL/5H2 YBF-RL/4H5
Manual call point	MCP-CP
Dual switch monitor	CHQ-S
Dual sounder controller	CHQ-B
Dual relay controller	CHQ-R
Dual zone monitor	CHQ-Z
Mini-zone monitor	CHQ-MZ

Standard Sensor base (YBJ-RL/2NA)

The standard base accepts the range of analogue sensors:

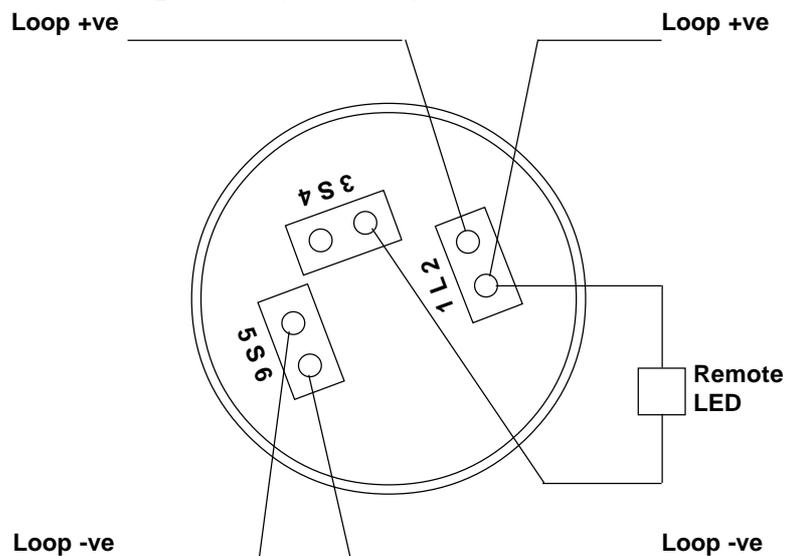


Figure 1 - Standard Base Connection Detail

Dual Switch Monitor (CHQ-S)

The dual switch monitor can monitor two voltfree input contacts which can be either normally open or normally closed, or one of each.

The contact configuration is set via the 2-bit DIL switch:

Bit 1 = Input 1 and Bit 2 = Input 2

ON = Normally Closed

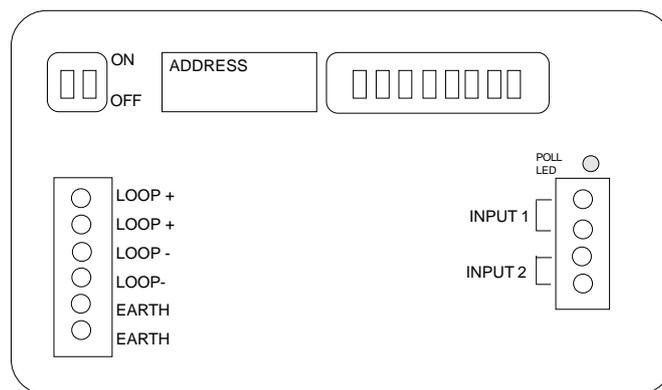


Figure 2 - Dual Switch Monitor Connection Detail

Dual Sounder Controller (CHQ-B)

The dual sounder controller provides two fully monitored and fused sounder circuits rated at 1A each, which are independently operable, and a remote monitored auxiliary input. A 24V DC supply is required.

The sounder outputs short/open circuit monitoring can be disabled via the 2-bit DIL switch. When enabled, a 1K end-of-line resistor is required.

Bit 1 = Output 1 and Bit 2 = Output 2. ON = Disabled.

The auxiliary input short/open circuit monitoring can be disabled via switch 8 of the 8-Bit DIL switch. When enabled, a 10K end-of-line resistor is required, together with a 470R resistor in series with the remote contact.

Bit 8 = Input 1. ON = Disabled.

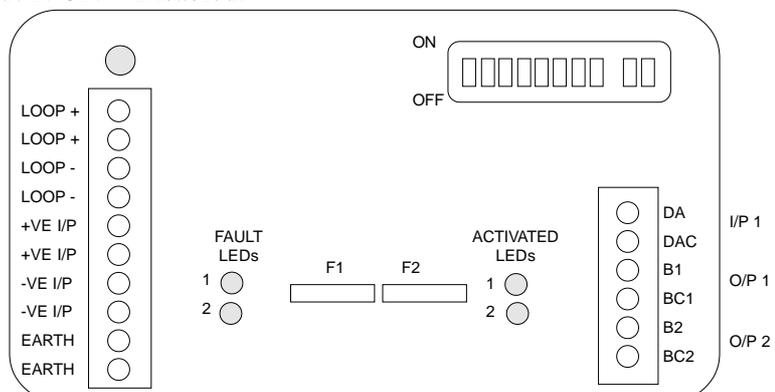


Figure 3 - Dual Sounder Controller Connection Detail

Dual Relay Controller (CHQ-R)

The dual relay controller provides two voltfree, independently operable, changeover contacts rated 1A @ 30V, and a remote monitored input. The short/open circuit input monitoring can be disabled via switch 8 of the 8-Bit DIL switch.

Bit 8 = Input 1. ON = Disabled

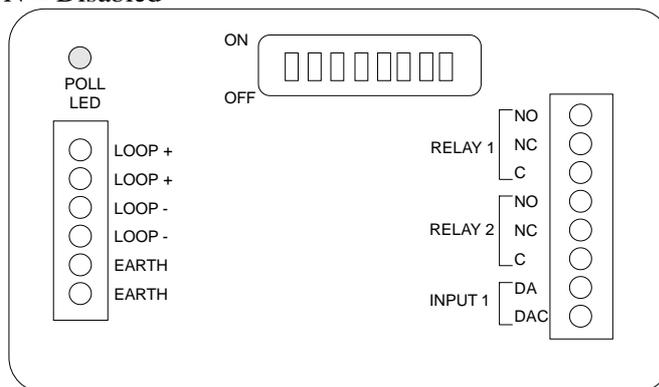


Figure 4 - Dual Relay Controller Connection Detail

Dual Zone Monitor (CHQ-Z)

The dual zone monitor provides two zones, each of which can accept up to 30 conventional detectors. The unit also provides an auxiliary low current output which can be used for local control, e.g. remote indicator.

Zone circuits must be terminated with the special end-of-line unit (part no. TE-RH-E).

This unit requires a 24V DC supply.

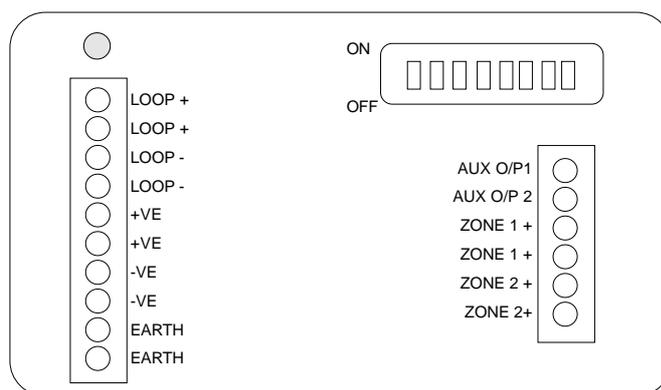


Figure 5 - Dual Zone Monitor Connection Detail

Mini-zone Monitor (CHQ-MZ)

The mini-zone monitor is similar to the zone monitor but provides only one zone of up to six conventional detectors, or one flame detector, and is powered from the loop.

Appendix B

Fault Codes

Faults for Address Points

- 1 Device connected to the loop without configuration data to match.
- 2 Device configured to be on the loop, without device being connected to loop.
- 3 The device type configured to be on the loop, and the actual device type connected to the loop, are different.
- 6 Device type has not been recognised as a valid device type.
- 7 Device removed from the loop after configuration.
- 8 Device type changed after configuration.
- 10 Double address fault - two or more devices physically set to the same address.
- 11 Address point removed.
- 12 Kind changed fault.

Faults for Detection Circuit

Fault in Detection Circuit xx (where xx is the loop number)
(The detection circuit fault can be either open or short circuit)

Calibration Errors

- 16 Operation test failed
- 17 Low zero point in calibration
- 18 High zero point in calibration
- 19 Low fire point in calibration
- 20 High fire point in calibration

Faults for Field Devices

- 32 General fault
- 33 Break in input line
- 34 Short in input line
- 35 Break in output line
- 36 Short in output line
- 37 External power failure

Faults for Conventional Loop Units (CHQ-Z, CHQ-MZ, YCA-RL/5H2)

- 48 Secondary loop broken
- 49 Secondary loop short
- 50 Conventional detector removed on secondary loop
- 51 Secondary loop fault

Fault for Configurable Input Devices

52 Input configured as fault

Fault for all Devices (Unknown fault)

53 Unknown error

DCI General Faults

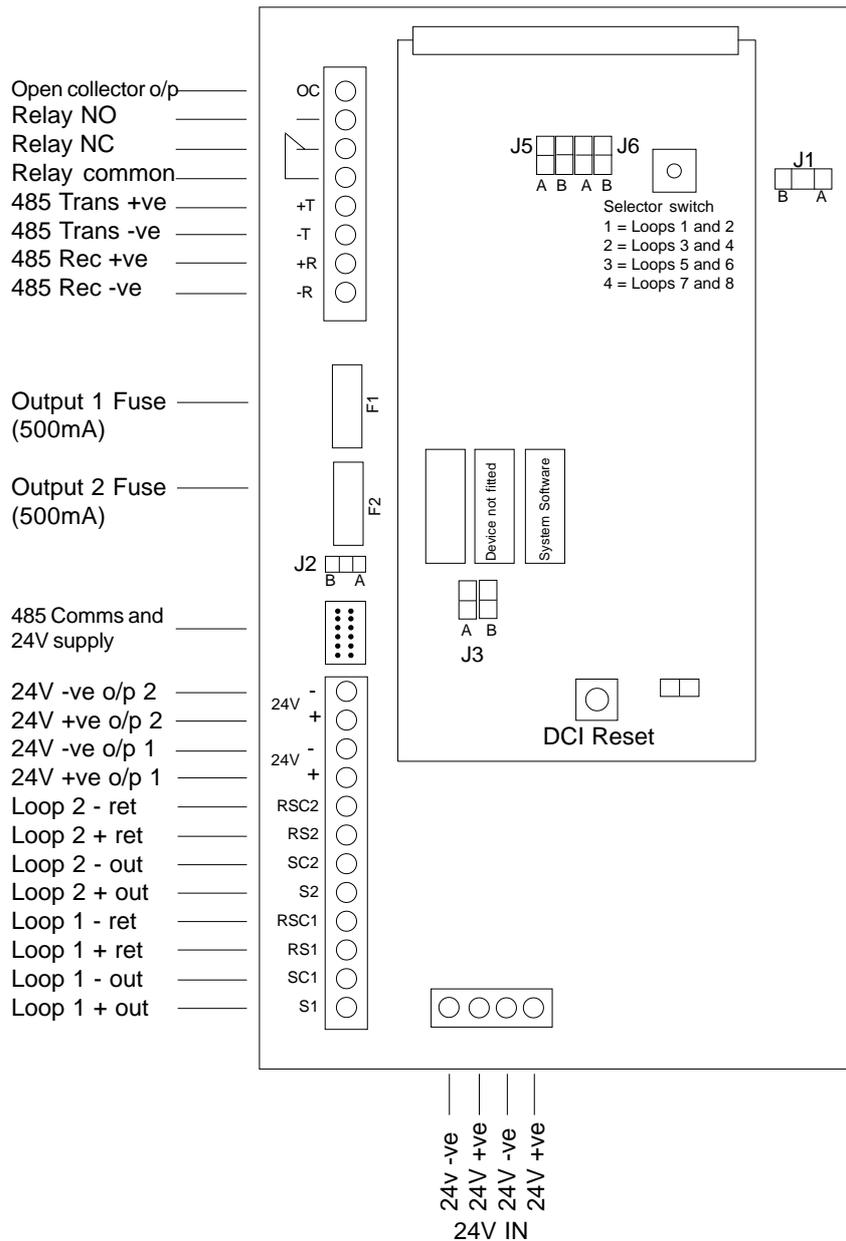
41 FUSE check failure

82 RAM check failure

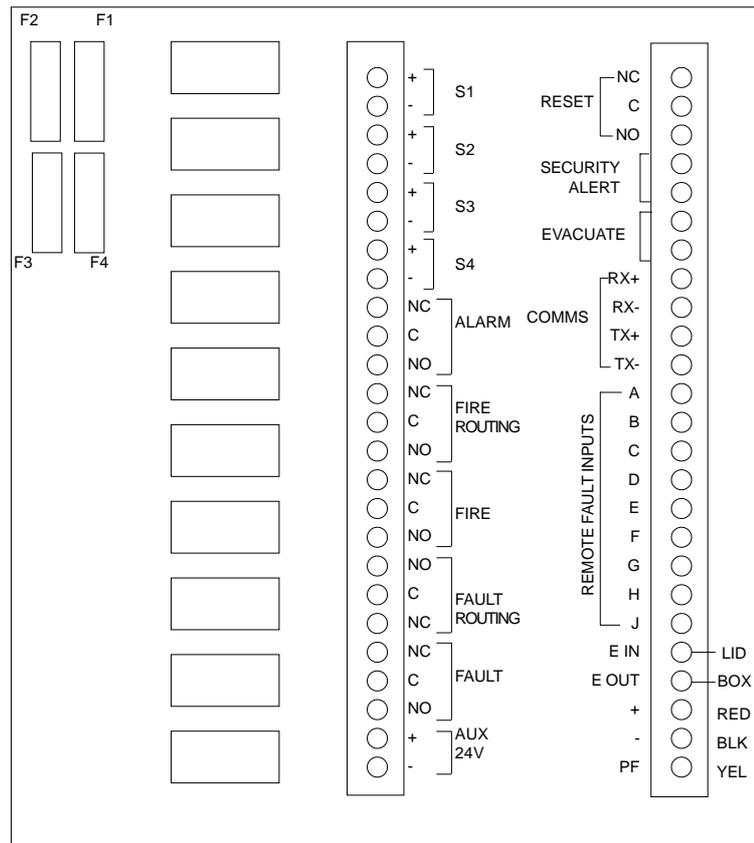
80 ROM checksum failure

Appendix C

Connection Detail - Detector Circuit Interface



Connection Detail - HAAN2 Board



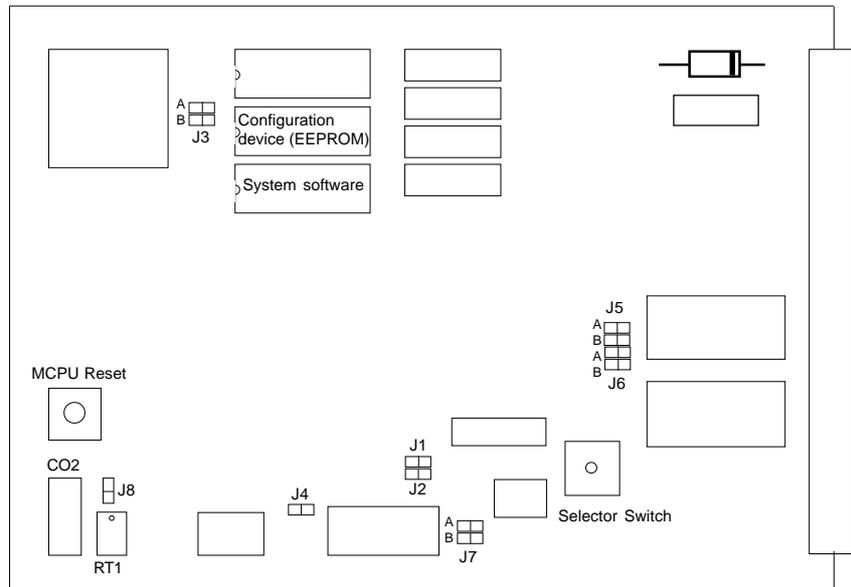
Fuse F1 - Sounder Circuit 1 = 1A

Fuse F2 - Sounder Circuit 2 = 1A

Fuse F3 - Sounder Circuit 3 = 1A

Fuse F4 - Sounder Circuit 4 = 1A

MCPU Card Link and Selector Switch Settings



J1	Fitted	Comms Enable (PC Port)
J2	Fitted	DCI RX Comms Enable
J3A	Not fitted	Address Selection (EPROM)
J3B	Fitted	Address Selection (EPROM)
J4	Not fitted	RX0 Comms Select RS232
J5A	Not fitted	TX0 Comms Select RS232
J5B	Fitted	TX0 Comms Select RS232
J6A	Not fitted	RX0 Comms Select RS232
J6B	Fitted	RX0 Comms Select RS232
J7A	Fitted	DCI (RX) Select RX0
J7B	Not fitted	DCI (RX) Select RX1
J8	Not fitted	
RT1	LCD Brightness Control	
Selector Switch - Should be set to 0		