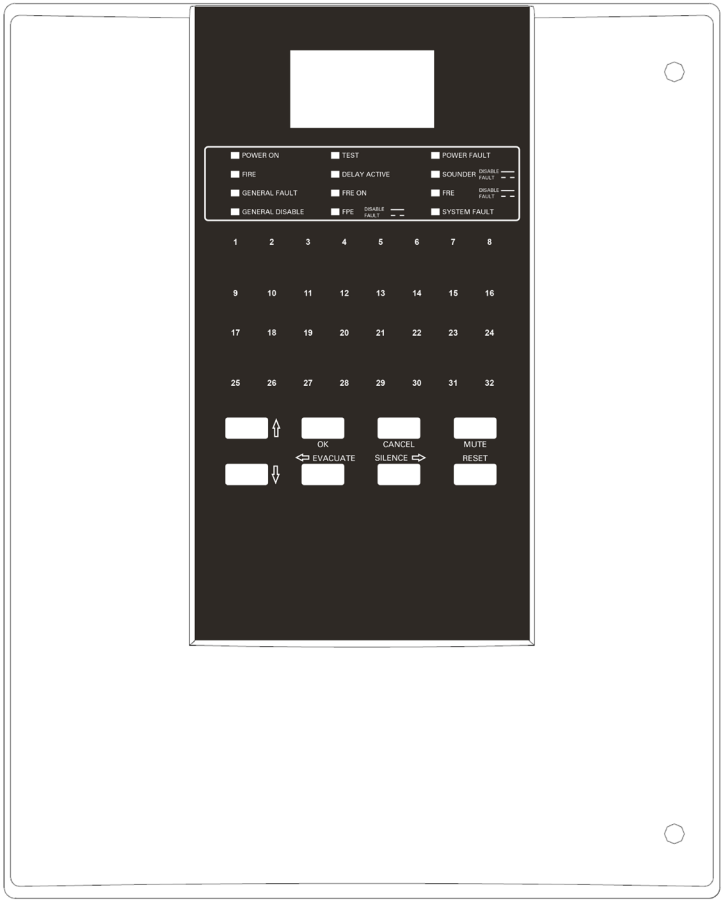
Addressable Two Loop Fire Panel

Installation and Operation Manual



Powering Business Worldwide

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DOCUMENT UPDATE NOTES

S.No.	Release / Change Notes	Date
A	First Release	March 2019
B	First Revision	December 2019

Introduction to the Manual

This manual provides information on the installation, operation and maintenance of the Eaton Fire Systems CF2000 Control Panel.

Notice

The operating system of the panel may be revised as a result of enhancements to the system software or hardware. An updated issue of this manual is available on request. The current issue of the manual can also be downloaded from the Eaton website.

⚠ WARNING

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE DISPOSE OF THE USED BATTERIES ACCORDING TO THE INSTRUCTIONS IN THE BATTERY DISPOSAL INSTRUCTIONS.

System Installation and Design

Introduction

CF2000 provides all of the sophisticated features required of a leading edge analogue addressable fire system along with the simple operation and neat installation demanded by installers and building users.

The panel can be flush or surface mounted and the generously sized metal back box allows ample facilities for rear or top cable entries. It is available as a two loop panel.

A comprehensive range of ancillary devices is available to operate with the CF2000 panel, including Optical, photo-thermal and heat sensors, callpoints and a comprehensive range of interfaces.

Each of the CF2000 system components has been specifically designed to operate as part of a CF2000 system, this provides an assurance that the panel, the sensor, the interfaces and the ancillaries are all fully compatible with each other and that the full range of system functionality is supported by each device.

Each loop of the panel can accommodate up to 200 (99 Belgium) addresses.

Cable & wiring

Only the cable types listed below are allowable for loop connections.

- Enhanced Fire TUF
- Fire TUF™
- FP200
- MICC

When choosing your preferred cable type, you must take note of the following cable and wiring requirements.

1. The cable must be 2 core screened with an over sheath
2. Maximum loop length with any of the above cables is 2KM
3. Maximum volt drop must be limited to 7 volts
4. The conductors should be 1mm^2 CSA minimum to a maximum of 1.5mm^2 CSA
5. Multicore cable should not be used for Sensor wiring
6. Different loops should NEVER be run within the same cable
7. Loop feeds and returns should NEVER be used within the same cable

Cable resistance

Core CSA	Typical FP200 resistance
1.0mm^2	18.1 Ohms/km/Core
1.5mm^2	12.1 Ohms/km/Core
2.5mm^2	7.41 Ohms/km/Core
4.0mm^2	4.61 Ohms/km/Core

Project Planning

The following is a typical program and timetable for an installation project, once the initial order has been received:

1. Project Meeting
Installer and user to be present; system specifications, schematic diagram and proposed circuit drawing to be available. CF2000 Installation & Commissioning Guide to be provided.

2. Equipment Fix
Typically 2 week's notice is required for equipment to be delivered. Cable to be installed and bases/back boxes to be fitted. Then fire sensors, call points, alarm sounders and interface units can installed.

3. Address Schedule
Schedule of sensor locations to be completed by installer and returned to enable System programming.

4. Auto Learn
Fire panel panels to be installed and terminated. System to be powered up by installer and auto learn mode activated (see Auto Learn section). System to be tested and verified by installer, prior to final commissioning.

5. Final Commissioning
Minimum 2 weeks notice is required from receipt of Address Schedule and Commission request form for an Eaton Fire Systems Service Engineer to attend site to implement/oversee the final commissioning procedures (see Commissioning section), in conjunction with the installer.

System Design Guidelines

Guidelines

Fire detection and fire alarm systems for buildings should conform to the relevant local standards and codes of practise. For the UK, these are BS 5839-1 (non-domestic premises) and BS 5839-6 (domestic premises). Both BS 5839-1 and BS 5839-6 require the Control and Indication Equipment (CIE) to conform to BS EN 54-2. The CF2000 fire control panel has been certified to BS EN 54-2. Therefore, the panel is suitable to be installed in applications which have been designed in accordance with the relevant BS 5839 codes of practise.

Installation planning is simplified by the fact that every addressable CF2000 device contains an integral short circuit isolator. Care must be taken to ensure that local standards requirements regarding aspects such as loop coverage, area covered by a single spur and cable specification are observed.

There may be certain applications in which deviations from the code may be necessary and these must be listed on the commissioning certificate (see Commissioning the panel).

Loop lengths

The maximum permitted loop length is 2 km measured from the near to the far terminals on the CF2000 Motherboard PCB. There is no minimum limit to loop length. Any wiring spurs off the loop must be included within the 2 km limit. On long loop runs, the lengths of wiring rises and falls (between floors, down to manual call points) must be included. Remember to include these especially when taking loop lengths from plan drawings.

Loop loading - total number of addresses

The total number of addresses per loop is 200 (99 Belgium). This includes detectors, call points and all other addressable items and call points. When designing systems its recommended that allowances are made for future expansion, Short circuit isolators are incorporated into every CF2000 loop device, including Smoke detectors, heat detectors, sounders, callpoints and interfaces. Therefore, no further fault protection is required. In the event of a single fault, none of the devices connected to the loop will fail to operate as the fault will be isolated by the two adjacent devices.

Spur connected devices downstream of a cable fault will cease to function.

Compatible Equipment

Description	Dimensions (mm)			Product Codes	
	Length	Width	Height	Model Reference	Order Code
Addressable Control Panels					
Addressable 2 Loop Control Panel, Standalone	170	320	400	CF2000	910187FULL-0198
Addressable Repeater Panels					
Addressable Passive Repeater			N/A		
Addressable Detectors: Bases					
Addressable Detector Base	104	104	22	CAB300	CAB300
Addressable Detectors: Point					
Addressable Multi-Mode Heat Sensor	100	100	44	CAH330	400003FIRE-0003X
Addressable Optical Smoke Sensor	100	100	34	CAP320	400002FIRE-0002X
Addressable Photo-Thermal Sensor	100	100	44	CAPT340	400004FIRE-0004X
Addressable Detectors: Speciality					
Addressable Reflective Beam Detector 50-100m	120	130	210	MAB100R	MAB100R
Addressable Reflective Beam Detector 5-50m	120	130	210	MAB50R	MAB50R
Addressable Call Points					
Addressable Manual Call Point	53	87	87	CBG370S	CBG370S
Addressable Manual Call Point (Weatherproof)	53	87	87	CBG370WP	CBG370WP
Addressable Alarms and Beacons					
Addressable Remote Indicator	49	87	87	MRIAD	MRIAD
Addressable Beacon	53	95	95	CAB382	CAB382
Addressable Ceiling VAD (Red Plastic, Red Flash, Shallow Base)	37	93	93	CAB482CS	812037FULL-0214X
Addressable Wall VAD (Red Plastic, Red Flash, Deep Base)	66	93	93	CAB482WD	812036FULL-0212X
Addressable Wall VAD (Red Plastic, Red Flash, Shallow Base)	37	93	93	CAB482WS	812035FULL-0211X
Addressable Ceiling VAD (Red Plastic, White Flash, Shallow Base)	37	93	93	CAB492CS	812050FULL-0269X
Addressable Wall VAD (Red Plastic, White Flash, Deep Base)	66	93	93	CAB492WD	812034FULL-0210X
Addressable Wall VAD (Red Plastic, White Flash, Shallow Base)	37	93	93	CAB492WS	812033FULL-0209X
Addressable Sounder Base	40	102	102	CAS380	CAS380

Compatible Equipment

	Dimensions (mm)			Product Codes	
Description	**Length**	**Width**	**Height**	**Model Reference**	**Order Code**
Addressable Sounder Base (Australian Tone)	40	102	102	CAS380AU	CAS380AU
Addressable Wall Sounder	96	105	105	CAS381	CAS381
Addressable Wall Sounder (Australian Tone)	96	105	105	CAS381AU	CAS381AU
Addressable Wall Sounder (Weatherproof, Australian Tone)	103	109	108	CAS381AU-WP	CAS381AU-WP
Addressable Wall Sounder (Weatherproof)	103	109	108	CAS381WP	CAS381WP
Addressable Wall Sounder Beacon	95	105	105	CASB383	CASB383
Addressable Wall Sounder Beacon (Weatherproof)	105	108	108	CASB383-WP	CASB383-WP
Addressable Wall Sounder VAD (White Flash)	95	108	108	CASB393	CASB393
Addressable Wall Sounder VAD (Open Class, Weatherproof)	105	110	110	CASB393WP	CASB393WP
Addressable Wall Sounder VAD (Red Plastic, Red Flash)	92	106	147	CASB483	8500111FULL-0197X
Addressable Wall Sounder VAD (Red Plastic, White Flash, Weatherproof)	100	111	151	CASB483WP	8500115FULL-0201X
Addressable Wall Sounder VAD (Red Plastic, White Flash)	92	106	147	CASB493	8500110FULL-0199X
Addressable Wall Sounder VAD (Red Plastic, Red Flash, Weatherproof)	100	111	151	CASB493WP	8500114FULL-0200X
Addressable Sounder Beacon Base	44	115	115	CASBB384	CASBB384
Addressable Sounder Beacon Base (Bell Tone)	44	115	115	CASBB384-B	CASBB384-B
Addressable Sounder VAD Base (Open Class)	44	115	115	CASBB394	666129FULL-0198X
Addressable Interfaces					
Addressable 3 Channel I/O Unit (Reset on Reset)	60	180	130	CIO351	CIO351
Addressable 3 Channel I/O Unit (Reset on Silence)	60	180	130	CIO351S	CIO351S
Addressable 3 Channel I/O Unit (Triple Address)	60	180	130	CIO351SST	CIO351SST
Addressable Micro Zone Monitor Unit	18.5	35	65	CIU872	CIU872
Addressable 230V Relay I/O Unit	60	180	130	CMIO353	CMIO353
Addressable 4-Way Sounder Controller	74	300	300	CSC354CPR	CSC354CPR
Addressable Spur Isolator Unit	60	147	88	CSI350	CSI350
Addressable Zone Monitor Unit	60	147	88	CZMU352	CZMU352

Description	Dimensions (mm)			Product Codes	
	Length	Width	Height	Model Reference	Order Code
Addressable Zone Monitor Unit (Intrinsically Safe)	60	147	88	CZMU352-IS	CZMU352-IS
Addressable Micro Single Channel Input Unit	18.5	35	65	MCIM	MCIM
Addressable Micro Single Channel Output Unit	18.5	35	65	MCOM	MCOM
Addressable Micro Single Channel Output Unit (Reset on Reset)	18.5	35	65	MCOM-R	MCOM-R
Addressable Micro Single Channel Output Unit (Sounder)	18.5	35	65	MCOM-S	MCOM-S
Addressable Shop Unit Monitor	57	147	88	MSU840	MSU840
Conventional Alarms and Beacons					
Conventional Remote Indicator	30	87	87	CIR301	CIR301
Conventional Remote Indicator (Weatherpoof)	30	87	87	CIR301WP	CIR301WP
Installation Accessories					
Safety Power Supply (24V/1.5A)	175	300	22	SPS-2423	SPS-2423
Safety Power Supply (24V/2.5A)	175	300	22	SPS-2433	SPS-2433
Safety Power Supply (24V/4.5A)	175	300	22	SPS-2453	SPS-2453

Compatible Equipment

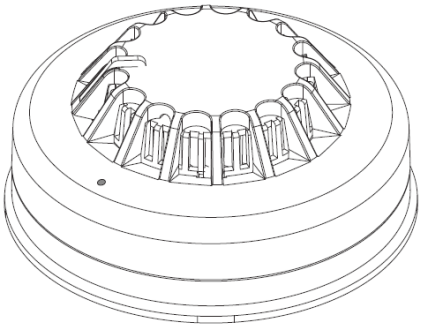
The range of compatible detectors for the CF2000 system consists of the following:

Model	Optical Sensor	Heat Sensor	Opto-Heat Sensor
Operating voltage	18 to 30V dc		
Standby current (max)	220µA		
Alarm current (max)	5mA		
Ambient Temperature (max)	60°C	A1R 50°C	50°C
		BS 65°C	
		CS 80°C	
Ambient Temperature (min)	-20°C		
Alarm temperature (static)	N/A	A1R 60°C	60°C
		BS 77°C	
		CS 90°C	
Heat sensor class as defined by EN54-5:2000	N/A	A1R, BS, CS control panel selectable	A2S
Relative humidity (no n co nd)	0 to 95%		
Height (w/o base)	34mm	43mm	
Height (with base)	47mm	56mm	
Diameter	100mm		
Weight (w/o base)	86g	78g	76g
Material	PC/ABS		
Colour	White		

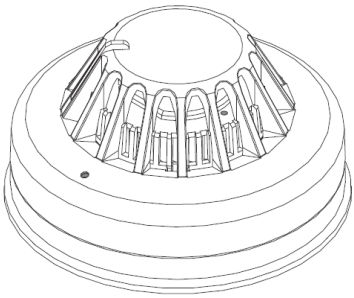
Optical Sensor

This is the most commonly used detector and is most suitable for detecting slow burning fires.

The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the control panel.



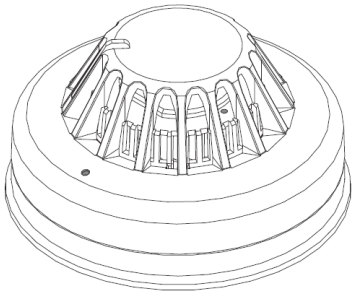
Opto-Heat Sensor



This is the ideal sensor for a multi-use environment as it has an excellent response to smouldering and fast burning fires. Photo/thermal sensors can be programmed for thermal only operation at certain times of day.

The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the CF2000 control panel.

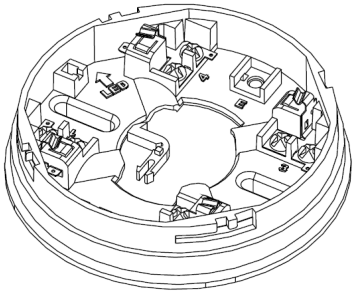
Heat Sensor



Heat sensors are suitable for dusty environments or environments where smoke is likely to be present under normal operating conditions. It can be programmed to operate in A1R,BS or CS mode of operation depending on the required application and sensitivity requirements.

The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the control panel.

Analogue Sensor Base



Short Circuit Isolators

Each of the sensors in his range contain an integral short circuit isolator, which operates between the -VE COM IN terminal and the -VE COM OUT terminal. The isolator operates in conjunction with the Control Panel when a low parallel resistance fault of typically 200Ω is presented between the+VE and -VE of the loop wiring.

Short Circuit Isolation Data (Integral with each sensor)

Total Loop Resistance for correct operation of short circuit isolator	50Ω (max)
Continuous Current allowable through isolator	700mA (max)
Isolator Resistance in closed state	0.13Ω (max)
Leakage Current into direct short circuit with isolator open	13mA (max)
Parallel Fault Resistance to be seen at the Control Panel for isolators to open	200Ω (typ)

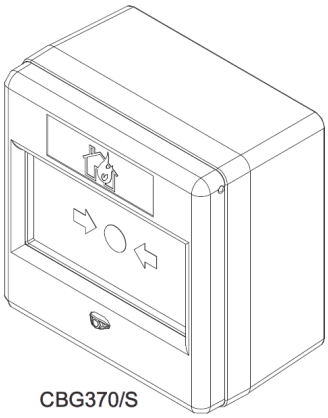
Compatible Equipment

Compatible Callpoints

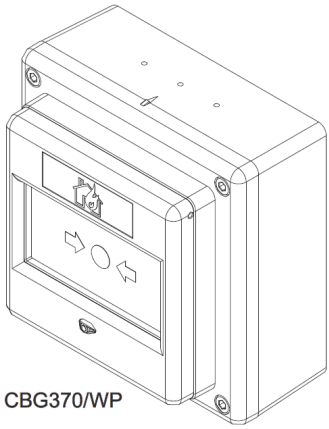
The range of purpose designed callpoints consists of a surface callpoint, a flush callpoint and a surface weatherproof callpoint.

A range of accessories is available including a hinged protective cover, resettable element kit and a flush bezel.

The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the control panel.



CBG370/S



CBG370/WP

Compatible Sounders and Beacons

A wide range of loop powered sounders and beacons are available to operate with the control panel consisting of a combined sounder base with a maximum output of 95 dB(A), a standalone sounder with a maximum output of 100 dB(A) that is available in standard or weatherproof versions and a stand alone loop powered beacon.
For applications where a discreet dedicated sounder is required, a cover plate is available for the white base mounted sounder enabling it to be used as a stand alone wall or ceiling mounted sounder.
All of these devices are fully programmable via the sophisticated CF2000 multi stage cause and effect programming facilities.

All sounders have multiple volume and tone settings which are controlled by the Site Installer program. They will default to continuous - low volume.

Base Sounder

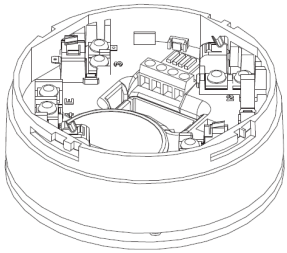
The base sounder has been designed specifically to complement the latest generation of Eaton soft addressed detectors.

It consists of a first fix bracket, and a main body which clips onto the bracket incorporating the sounder and a detector mounting base in a single composite assembly.

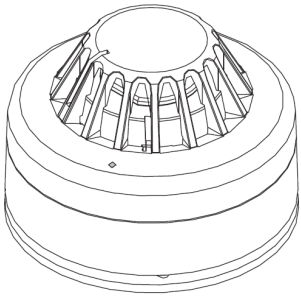
After the body has been clicked into place and connected, a sensor or front cover is then added to complete a very simple quick and neat installation.

The cover enables the base sounder to be used as a discreet stand alone wall or ceiling mounted device.

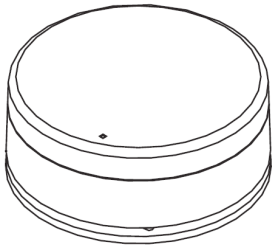
The sounder base design incorporates a mechanism that can be activated if required to lock either the sensor or the cover into place to prevent unauthorised removal.



CAS380



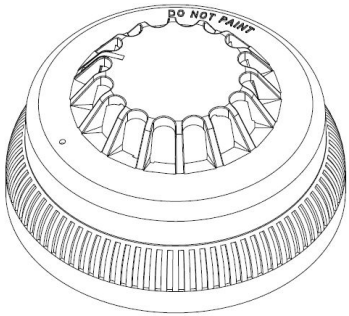
CAS380 with sensor fitted



CAS380 with CASC fitted

Base Sounder Beacon

The base sounder beacon has been designed with the same fixing as the sounder base so it can accommodate either a detector or front cover being fitted.

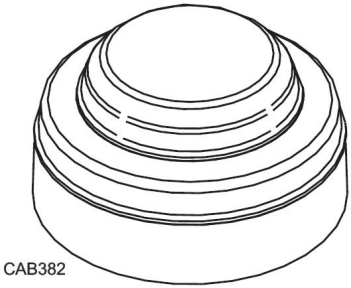


CASBB384

Compatible Equipment

Loop Powered Beacon

A loop powered flashing beacon is available for applications where visual alarm indication is required such as areas of high ambient noise or buildings which are used by people who are hard of hearing.

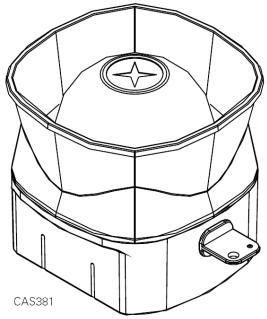


CAB382

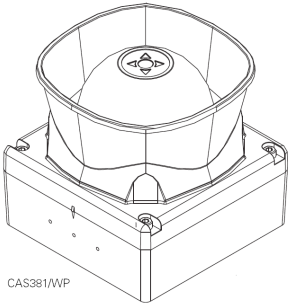
Dedicated Stand Alone Sounders

Stand alone sounders are ideal for applications where greater sound outputs are required than can be achieved with a base sounder or for applications requiring a higher level of resilience or ingress protection.

Two different versions are available standard version and an IP66 rated version.



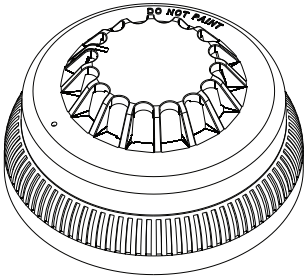
CAS381



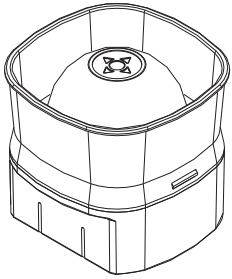
CAS381/WP

Visual Alarm Devices (VADs)

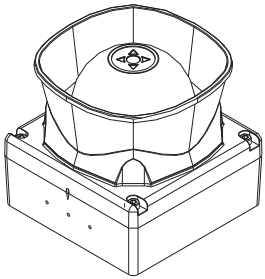
A range of loop powered VADs are available for applications where visual alarm indications is required. These include areas of high ambient noise, or buildings which are used by people who are hard of hearing. Each product in this range provides both audible and visual indication of a fire alarm. The range consists of a VAD base and two wall sounders. The base sounder VAD has been designed with the same fixing as the base sounder so it can accommodate either a detector or front cover being fitted.



CASBB394 with Sensor fitted



CASB393



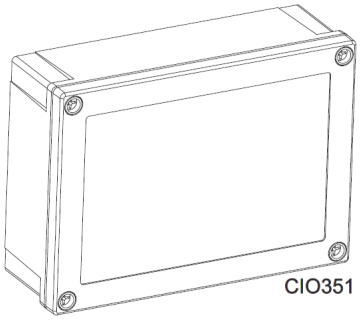
CASB393WP

Interfaces

The panel has been designed to be suitable for a wide range of applications, various interfaces have been developed to enable the simple integration of other fire systems or building control and safety systems. The following devices are available:

3 Channel I/O device

This interface has 3 input channels and 3 output channels. It is used to monitor up to three separate inputs from equipment such as sprinkler flow switches and also to provide 3 separately controlled volt free output contacts which are intended to be used to control external equipment such as air handling plant or access control systems.


CIO351

All inputs and outputs operate completely independently of each other and can be programmed using the sophisticated cause and effect capabilities to operate either globally or in response to activation of specific devices or specific inputs.

Inputs are monitored for open and short circuits. A specific resistance is required to activate an alarm condition, fully open or short circuit conditions are monitored and generate a system fault signal.

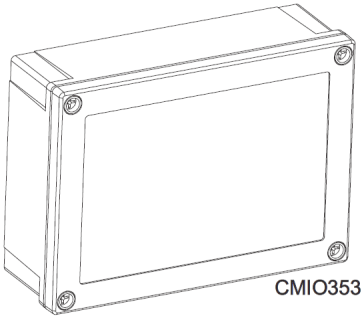
Inputs are suitable for use as fire signal inputs such as from a sprinkler flow switch, however they can also be used to monitor non fire inputs such as external keyswitches.

Outputs are rated to switch a maximum of 1A resistive at 30V DC.

It is supplied in a surface mounting IP65 box.

Single Channel I/O device with mains rated switching capability

This interface is a single channel input / output unit. The output is capable of switching up to 8A at 230V AC. It is commonly used for applications such as door release controls and plant shut down signalling.

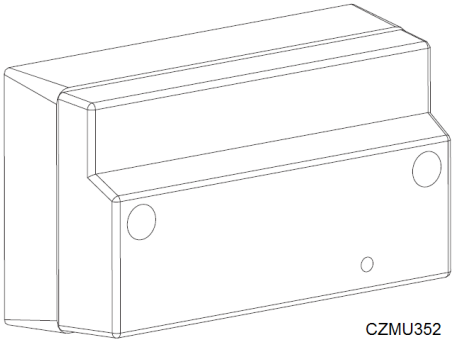

CMIO353

The input is monitored for open and short circuits. A specific resistance is required to activate an alarm condition, fully open or short circuit conditions are monitored and generate a system fault signal.

The input is suitable for use as a fire signal input such as from a sprinkler flow switch. However it can also be used to monitor non fire inputs such as an external keyswitch.

It is supplied in a surface mounting IP65 box.

Zone Monitor units


CZMU352

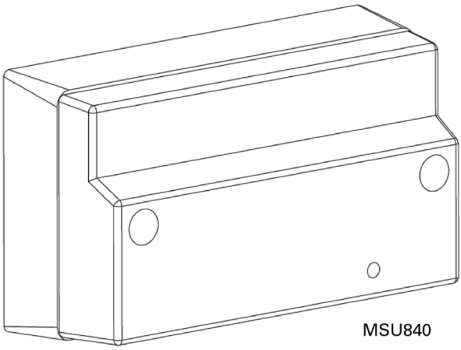
This interface is designed to enable a zone of compatible conventional detectors and callpoints to be connected into the addressable loop, it is compatible with up to 20 Eaton conventional detectors connected via the EFXN520 range of detector bases and compatible detectors. Please refer to local standards for details of the maximum allowable area to be covered by a single spur / zone. The interface fixes to a standard, deep, double gang back box and can be either surface or semi recess mounted. When semi recessed only the front section protrudes giving a maximum 29mm depth.

An additional intrinsically safe variant is available. The detection zone has been programmed to accept a Zener barrier and a zone of intrinsically safe detectors. End of line for this zone now becomes 6K8 and the diode in the detector base must be removed.

Shop Unit Interface

This interface accepts a zone of conventional detectors plus an unlimited number of callpoints which can be connected to the same input as the detectors or a separate callpoint input if required. There is a facility to connect a local 24v power supply which is monitored for fault.

In addition it has the facility to connect two circuits of conventional polarised sounders, which are monitored by means of an end of line resistor and powered in alarm conditions from the external power supply.
The sounder circuits can be programmed to operate in pulsed, continuous or time delayed mode.

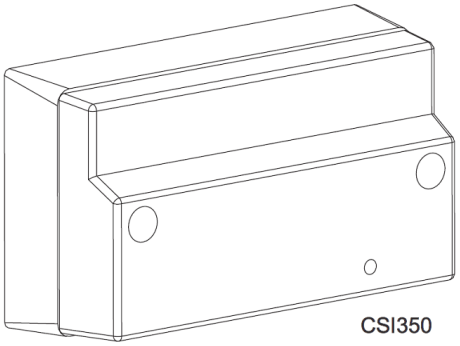

MSU840

Please refer to local standards for details of the maximum allowable area to be covered by a single spur / zone.

Note: The external supply must be connected even if the sounder circuits are not used.

Spur Isolator

CSI350 Enables soft addressing to work when the loop contains spurs, it controls the addressing operation so that when the system reaches a spur, all devices on the spur are allocated an address before it continues addressing the loop. It is mounted on a standard deep double gang back box (supplied).



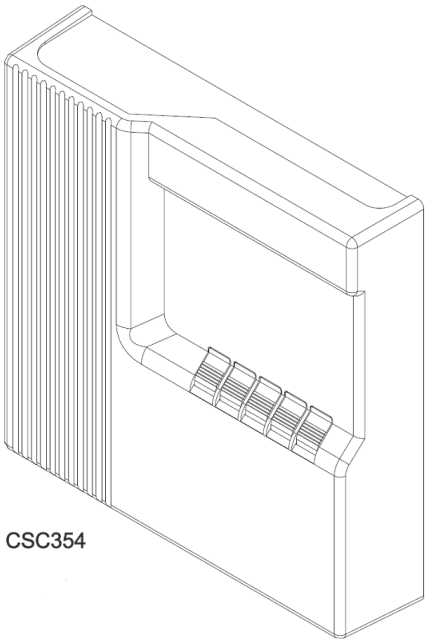
CSI350

The device also incorporates a short circuit isolator. Because each device contains a short circuit isolator only 1 is required at the start of each spur.

Please refer to local standards for details of the maximum allowable area to be covered by a single spur / zone.

4 Way Sounder Circuit Controller

This interface provides power for 4 separately controllable conventional sounder circuits, each circuit can be separately programmed. It has been designed to greatly simplify installation in applications where specialist sounders or beacons are required since it powers the sounders and allows full control of the sounder operation without having to wire the sounder back to the control panel. A 4 way unit takes up a single address but each circuit can be independently controlled.



CSC354

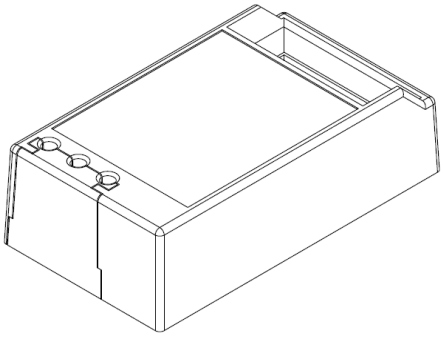
It requires a local un-switched 230V supply and incorporates a back up battery to 24 hours of standby operation followed by a minimum of 30 minutes of full alarm ringing.

A standby of 72 hours can be achieved at the expense of reduced load capability.

Compatible Equipment

Micro Interfaces

A range of micro interfaces modules are also available:



The micro zone monitor is fully compatible with the current range of Eaton analogue fire detection panels. It is suitable for interfacing a zone of up to 20 conventional detectors connected via the EFXN520 range of detector bases and compatible detectors, onto an Eaton analogue fire panel. It will operate with any Eaton conventional detector in configuration with a schottky diode type base.

The micro input module accepts input signals from external equipment such as beam detectors, flow switches, valve monitor switches etc. The control panel can be programmed to perform different actions based on the state of the input. The maximum number of input devices per loop is 200.

Equipment Compatibility

Sensors

Loop wired sensors must be of the Eaton Addressable 800 Protocol series soft addressed analogue type. Eaton conventional detectors can be connected via a zone monitor. The connection of other detector types via an zone monitor interface is not recommended.

Call points

Loop wired call points must be the Eaton Addressable 800 Protocol series soft addressed analogue type, Eaton conventional callpoints can be connected via a zone monitor interface. The connection of other callpoint types via a zone monitor interface is not recommended

Sounders

Loop powered addressable sounders must be of the Eaton Addressable 800 Protocol series soft addressed analogue type.

Conventional sounders can also be connected either to the conventional sounder circuits at the panel or to the loop via the 4-way sounder controller interface providing they meet the following:

They are suitable for operation between 18V and 28V.

They are polarised and suppressed.

The total alarm load is less than the rating of the panel / Alarm Power Interface.

Note: It is possible to use devices outside these requirements if they are supplied with power from a separate source and switched via a suitable relay.

Relay circuits

Additional relays can be added to the control panel system by using either single channel or three channel relay units.

Relays / Auto-dialers and auxiliary equipment

A wide variety of relays and other equipment can be connected to the system, but you should note the following constraints:

1. The panel provides monitored outputs to drive fire and fault relays mounted in external equipment. External relays should be suppressed. If a non-suppressed relay is used then a diode can be connected, to suppress any reverse EMF on the release of the relay which might cause the panel to malfunction.
2. A 24V DC output is provided at the panel to make it easy to connect ancillary equipment. Although the panel can supply a continuous quiescent load of up to 30mA, BS5839 precludes this practice and any ancillary equipment you connect should only consume power in the alarm or fault mode to meet the requirements of BS5839.

System Overview

Simple user interface

The main element of the user interface with the control panel is a (60mm x 30mm visible area) display, which provides comprehensive user information.

As well as an LCD display providing full system status information, the panel incorporates 32 traditional zone indication LEDs to provide clear information about the status and spread of a fire even to a user who is completely unfamiliar with the operation of the system.

In addition there are a number of system status LEDs designed to give clear status information to non technical users

User configuration and maintenance facilities

The panel has comprehensive facilities for on site system configuration, whereby the user can add or remove simple devices, without the need for a service engineer to visit site.

For initial configuration or major system changes special PC configuration software is available enabling Eaton personnel to do this. Exiting configurations can be uploaded to the PC so that changes can be made to the existing system rather than having to revert to initial files.

During the yearly maintenance, all terminal under main supply shall be verified.

Spur tolerant soft addressing

The panel utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes.

Once the system has been installed and the autolearn menu selected, the control panel will automatically scan the detection loops and allocate each device with an address number corresponding with its position on the loop. This avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error.

A major innovation with the panel is the ability to incorporate spurs of analogue devices which are fed from the main loop by utilising a spur isolator.

Whenever the panel detects a spur, it breaks from allocating address numbers to the loop wired devices, allocates address numbers to each of the devices on the spur in sequence and then continues to address the devices on the main loop.

Every analogue device incorporates an integral short circuit isolator ensuring maximum system integrity. A single short circuit will not disable any loop-mounted devices. The isolators in the devices each side of the short circuit will operate and the control panel will drive communication from both ends of the loop.

The spur isolator also incorporates a short circuit isolator such that in the event of a short circuit on the spur, the integrity of the main loop will not be compromised.

Please refer to local standards for details of the maximum allowable area to be covered by a single spur.

Integral Power Supply and Battery

The panel is designed for ease of installation, the power supply and battery are integral to the main control panel so only a single panel is required.

Technical Specification

Power Supply (Approved EN54 pt 4)

Mains		
Nominal Voltage		230V AC + 10%, -15%
Nominal Current		40mA
Maximum Current		500mA
Input Fuse R1		Anti Surge 1.6A
Output Voltage including tolerances	26V	= 25 to 28.6V
	26V RAW	= 20.4 to 29.0V
	5V Output	= 4.85V to 5.15V
Ripple Voltages	26V	= 800mV
	26V RAW	= 800mV
	5V Output	= 430mV
Maximum Loadings	26V O/P	= 0.48A *I max b
	26V RAW O/P	= 1.2A *I max b
	5V	= 0.5A
Standby Current (2 Loops Loaded)	26V	= 140mA *I max a
	26V RAW	= 50mA *I max a
	26V	= 140mA *I min
	26V RAW	= 50mA *I min
	5V	= 80mA

* I max a, I max b & I min = Current as specified in BS EN54-4 Published 2006 (Amendments 1 & 2)

Technical Specification

Batteries	
Number of Batteries	2
Manufacturer	YUASA NP7-12
Capacity	7Ah
Battery Fuse	6.3A Anti-Surge (F4)
Maximum battery current	3.0A
Standby current (mA)	125 (2 loops)
Maximum Charging Current to the Batteries	0.65A
Float Voltage	27.4V
Final Voltage	21.0V
Charging Characteristics	Constant Voltage with 0.65A limit with temperature compensation
Maximum current drawn from the batteries when the mains is not available	3.0A
Deep Discharge Protection	20.6V
Battery Internal Impedance Fault	>0.5Ω

Inputs	
Addressable Loops	
Max Number	2
Max Loop Load per loop	200mA
Max Number of Addressable Devices per loop	200
Class Change	Operated by external volt free contact
Max Cable Length	2km
Min Recommended cable size (csa)	1.5mm^2

Zones	
Max Number	250
Max Per Loop	200
Max LED Indicated	32

⚠ WARNING

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS GIVEN ON PAGE 97 BATTERY DISPOSAL INSTRUCTIONS.

Outputs

Conventional sounder circuits	
Nominal Voltage	20.4V - 29.0V
Number of sounder circuits	4
Total Sounder Load	1.0A (FH1204)
Maximum Sounder Circuit Load	800mA
Sounder Circuit Fuses (F1/2/3/4)	1.6A (Quick Blow)
End of line resistor	6k8

Fire Routing Equipment	
Nominal Voltage	20.4V - 29.0V
Max Load	60mA
Fused (PTC2)	100mA polyswitch
End of Line resistor	6k8
Max Cable Length	2km
Min Recommended cable size (csa)	1mm^2

Fire Protecting Equipment	
Nominal Voltage	20.4V - 29.0V
Max Load	60mA
Fused (PTC4)	100mA polyswitch
End of Line resistor	6k8
Max Cable Length	2km
Min Recommended cable size (csa)	1mm^2

Fault Routing equipment	
Input Voltage	30V
Input Current	30mA
Fused (PTC1)	100mA polyswitch
End of Line resistor	6k8
Max Cable Length	2km
Min Recommended cable size (csa)	1mm^2

Auxiliary Relays	
The auxiliary relays provide fused volt free change over contacts. These contacts are not monitored.	
Max Load	24V, 1A
Fuse (PTC5)	1.1A polyswitch
Max Cable Length	1km
Min Recommended cable size (csa)	2.5mm^2

Auxiliary 24V Supply	
Nominal Voltage	20.4V - 29.0V
Fuse (PTC3)	300 mA polyswitch
Maximum current	30 mA
Max Cable Length	2km
Min Recommended cable size (csa)	1mm^2
This output is not to be used for Fire protecting equipment or Fire alarm routing Equipment Any power taken from the alarm system will affect the standby duration	
Mechanical Specification	
Weight including batteries	10.6 Kg
Weight excluding batteries	5.3 Kg
Dimensions (Standard batteries)	400 mm (L) x 320 mm (H) x 170 mm (D)
Type of Material (backbox)	Mild Steel (Powder Coated)
Type of Material (facia)	PC/ABS
Flammability Rating	UL 94 V0
Total Number of knockouts	24
Diameter of knockout	20 mm
Cable Specification	
Minimum cross-sectional area	1mm^2
Maximum cross-sectional area	4mm^2
Recomended cable type	FIRETUF FP200 2.5 mm^2 csa

⚠ CAUTION

TERMINAL BLOCKS: DO NOT USE EXCESSIVE FORCE WHEN TIGHTENING THE SCREWS ON THE TERMINAL BLOCK

Optional Functions as per EN54 Parts 2 & 4

The panel is approved to EN54 Parts 2 & 4 including all the options in this section which can be selected as required. On page 33 is a typical system wiring diagram, which shows the recommended connections for the equipment described in this section.

Panel Inputs

Class Change: (Option not required by EN54)

A pair of terminals are provided for class change. By shorting these terminals together (e.g. Switch, Time clock) the alarm will sound (panel sounders + loop sounders only). The Panel will not indicate a Fire. The alarm will cancel when the short circuit is removed.

⚠ CAUTION

EQUIPMENT DAMAGE: NO VOLTAGE SHOULD BE APPLIED TO THIS INPUT

Panel Outputs

Panel Sounders: (Option 7.8 EN54 Part 2)

Two pairs of outputs are provided. ONLY polarised equipment should be used.

Ensure the polarity of the connections are observed at all times and end of line resistors (6K8 5%) are fitted for correct operation.

The total alarm load across all sounder outputs = 1.0A

All outputs are fused with 1.6A Glass fuse. Alarm devices should be spread equally across the four sounder circuits.

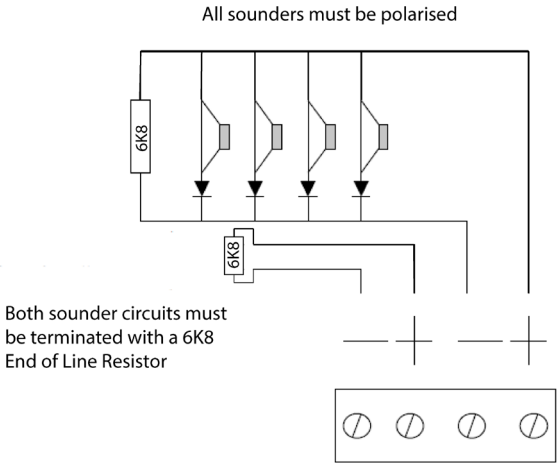


Figure 1. Typical Sounder circuit

⚠ WARNING

DO NOT EXCEED THE RATED OUTPUT CURRENT

Output to Fire Alarm Routing Equipment (Option 7.9 EN54 Part 2)

This output, which is fused, and monitored using a 6K8 end of line resistor, is used for the automatic transmission of the fire signals to Fire alarm routing equipment (e.g. Fire Brigade). It operates by providing a 24V DC output to an auxiliary device (e.g. relay).

It is current limited to 30mA using a resettable polyswitch. Class change and test conditions do not operate this output. If operated under a fire alarm condition, the FRE LED will illuminate and will remain illuminated until the fire alarm is reset.

Ensure the polarity of the connections are observed at all times and end of line resistors (6K8 5%) are fitted to ensure correct operation.

Output to Fire Alarm Protecting Equipment

(Option 7.10 EN54 Part 2 Option A)

This output, which is fused, and monitored using a 6K8 end of line resistor, is used for the transmission of the fire signals to controls for automatic fire protecting equipment (e.g. Door released units etc). It operates by providing a 24V DC output to an auxiliary device (e.g. relay).

It is current limited to 30mA using a resettable polyswitch. Class change and test conditions do not operate this output. If operated under a fire alarm condition, this output remains energised until the fire alarm is reset.

Ensure the polarity of the connections is observed at all times and end of line resistors (6K8 5%) are fitted to ensure correct operation.

Output to Fault Warning Routing Equipment

(Option 8.9 EN54 Part 2)

This output, which is fused and monitored using a 6K8 end of line resistor, is used for the transmission of fault signals to fault warning routing equipment. This output is monitored using a 6K8 end of line resistor and is current limited to 30mA. Under normal condition it operates by providing 12V DC which can be connected directly to a 12V auxiliary device (it is current limited to 30mA).

Under fault conditions or even if the panel is powered down, this output will be switched to 0V.

Ensure the polarity of the connections is observed at all times and end of line resistors (6K8 5%) are fitted to ensure correct operation.

Delays to outputs (Option 7.11 EN54 Part 2)

The panel has the option to delay the operation of panel sounders, the Fire Routing equipment output and the Fire Protecting equipment. This delay is selectable using the Site Installer download software. The delay is configurable in increments of 1 minute up to a maximum of 10 minutes.

This delay can be enabled and disabled at access level 2.

The has the facility for a specific call point to override this delay by programming this call point via an input interface to provide an evacuate signal using the Site Installer software.

Dependencies on more than one alarm signal Type C (Option 7.12.3 of EN54 Part 2)

The panel has the facility to inhibit the operation of the output sounders, output to fire alarm routing equipment and the output of the fire alarm protecting equipment until one more confirmatory signals are received from different zones. This feature is programmable using the Site Installer software.

Optional Functions as per EN54 Parts 2&4

1. Auxiliary Relay (Option not required by EN54)

This output is a volt free contact, which is protected by a polyswitch. It is rated at 24V DC 1A. If operated under a fire alarm condition, this output will remain energised until the fire panel is reset.

DO NOT USE TO SWITCH MAINS VOLTAGE

2. Auxiliary DC Output (Option not defined by EN54)

A 24V DC output is provided. This output is protected by a polyswitch. This output can be used to power fire or fault auxiliary equipment. Please ensure that all equipment connected to this output will only draw current when a fire condition exists.

⚠ WARNING

DO NOT EXCEED THE RATED OUTPUT CURRENT

Installation

Mains Supply

The mains supply must be installed in accordance with the current edition of the IEE wiring regulations, and must be fully compliant with local regulations.

Connection to the mains supply must be via an isolating device (e.g. a double pole isolating fuse rated at 2A) reserved solely for the fire alarm system. The cover should be coloured red and labelled

FIRE ALARM - DO NOT SWITCH OFF

The isolating protective device should be secure from unauthorised operation and ideally installed in a securely closed box with a breakable cover.

An additional warning label should be provided, depending on whether:

A. The isolating protective device is fed from the live side of the main isolating device in which case the label on the isolating protective device, should read in addition:

   WARNING: THIS SUPPLY REMAINS LIVE WHEN THE MAIN SWITCH IS TURNED OFF

   A further label should be placed on the main isolating device reading

   WARNING: THE FIRE ALARM SUPPLY REMAINS LIVE WHEN THIS SWITCH IS TURNED OFF

Or

B. If the isolating protective device is fed from the dead side of the main isolating device, a label should be fixed to the main isolating device reading

   WARNING: THIS SWITCH ALSO CONTROLS THE SUPPLY TO THE FIRE ALARM SYSTEM

Cable Segregation

All cables for the fire alarm system should be segregated from any other cables/ wiring/services.

Panel Installation

The panel should be installed in a clean, dry, reasonably well ventilated place, and not in direct sunlight. Temperatures in excess of 40°C and below 5°C may cause problems, if in doubt consult Eaton Fire Systems. The panel should be located away from any potential hazard, in a position where it is readily accessible to authorised staff, and the fire services, ideally on the perimeter of a building near a permanent entrance. Mount the panel to the wall using the drill template provided. Do not drill through the panel to the wall as dust will contaminate the circuitry.

Installation Guide

- Never carry out insulation tests on cables connected to electronic equipment.
- DO NOT OVER TIGHTEN TERMINAL CONNECTOR SCREWS
- Always use the correct type of cables specifically designed for the operation of fire detection and alarm circuits.
- Always adhere to volt drop limitation when sizing cables.
- Always observe polarity throughout. Non colour coded conductors should be permanently identified.
- Screen continuity must be maintained throughout the entire loop circuit including at each junction point and at each device. Terminals are provided on each device to facilitate this.
- The screen should be earthed at the connection point provided at the panel and not at any other point. Both the loop start and the loop end must be connected to the appropriate earthing points.
- Care must be taken to avoid connecting the screen to the earthed body of any metal devices, enclosures or cable containment. The screen or drain wire of the loop cables should not be considered as safety earth and therefore should not be connected to terminals marked with the earth symbol, except at the panel, and should not be insulated with green and yellow sleeving.
- The panel utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes. Once the system has been installed and the loops wired to the panel with all devices fitted, the control panel will automatically scan the detection loops on power up and allocate each device with an address number corresponding with its position on the loop. This avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error. If no devices can be found the panel will keep rebooting and performing an auto-learn until a device is found on a loop.
- It is of vital importance that accurate details are kept of the exact wiring route in order to determine which address has been allocated to each device.

Fixing Details

Read all the installation instructions before commencing with the installation. The installation of this panel must be carried out by a suitably qualified /trained person.

The installation must comply with IEE wiring regulations and with BS5839 part 1 and part 6.

The electronic components within the fire panel are Static Sensitive. Do not touch the electronics directly.

Mounting the Backbox

The panel can be flush mount or surface mounted.

1. For Surface Mount; drill four holes and fix the backbox to the wall.
2. For Flush Mount the backbox requires a hole 310mm x 355mm with a depth of 117mm.

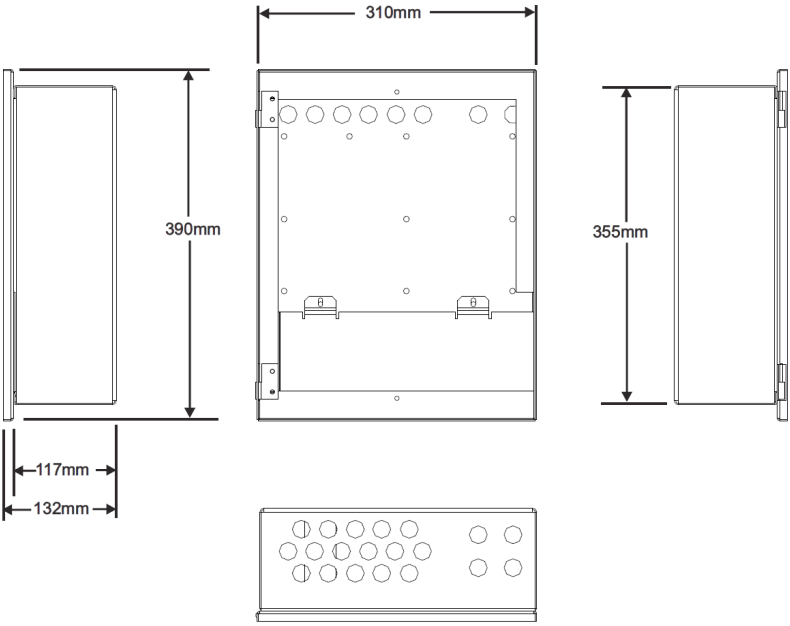


Figure 2. Back Box dimensions

Installing Cabling

Once the backbox is mounted the next stage is to install the power and loop cables and fit the glands.

System Wiring

A typical system wiring arrangement.

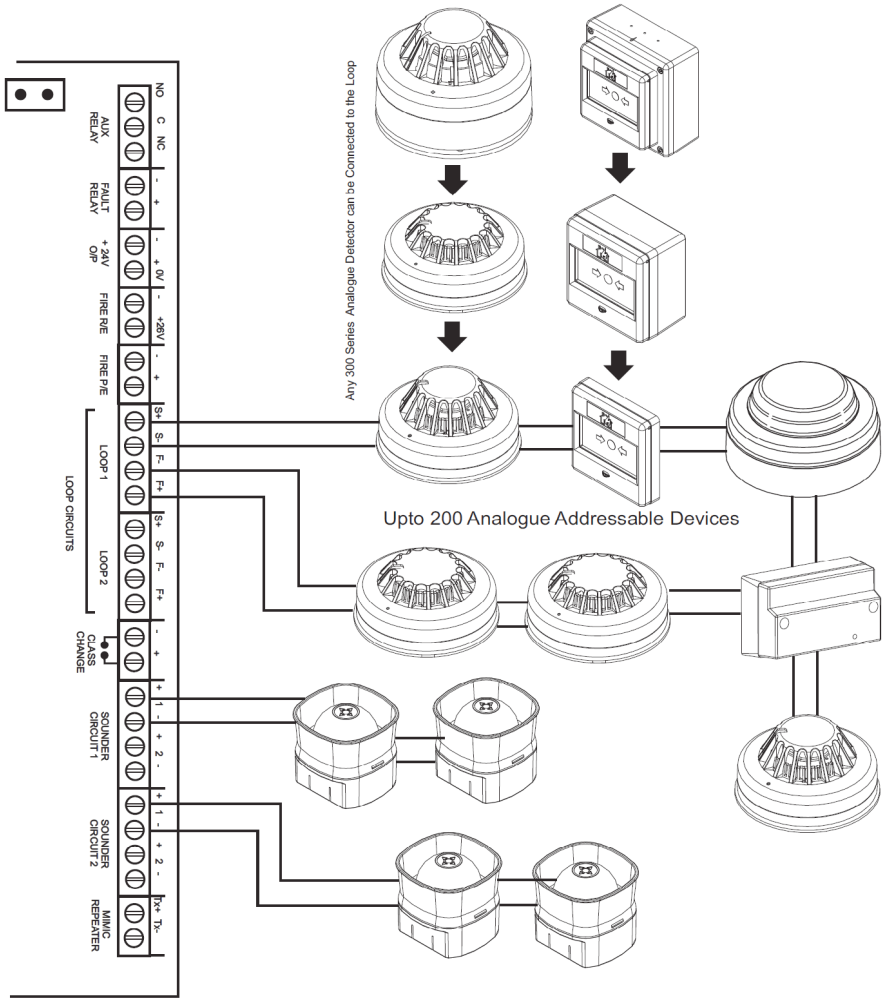


Figure 3. Typical System Wiring diagram

Commissioning the panel

Up/downloading using PC software

The PC Software enables the address, location text, device type and any comments to be downloaded to the CF2000 panels.

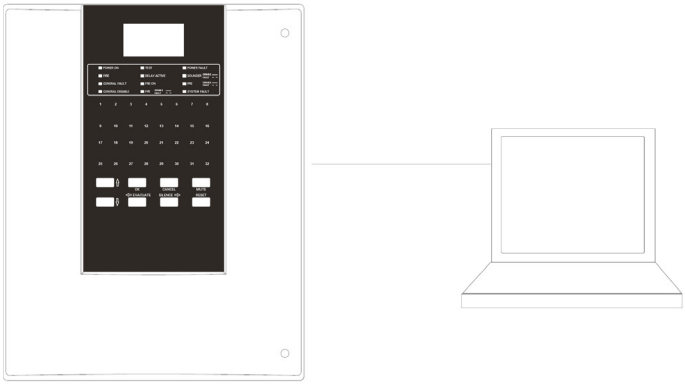


Figure 4. CF2000 front panel

PC commissioning software

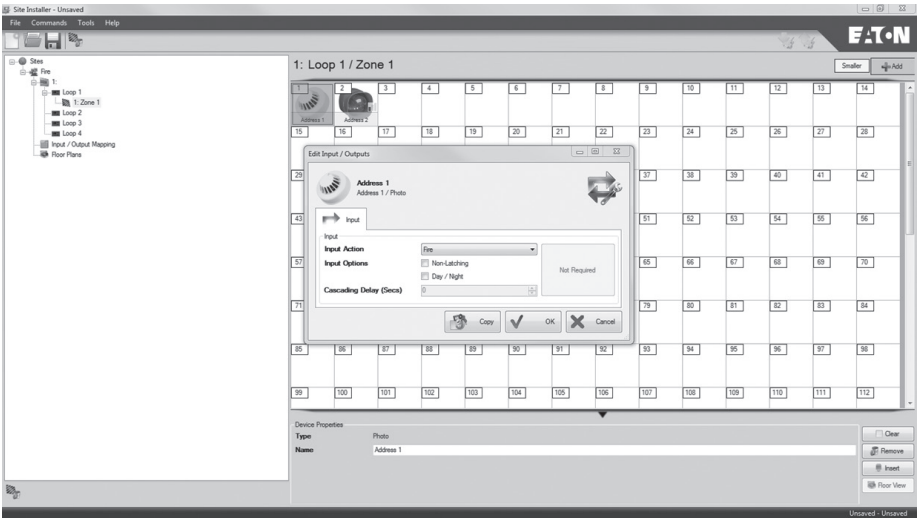


Figure 5. Device Inputs

Device input programming

- Fire = panel reports fire from device.
- Fault = panel reports fault from device.
- Reset = panel resets.
- Silence = silence all currently active sounders.
- Technical/Input = No indication on display, creates a log entry.
- Evacuate = Sends an evacuation command.
- Fire/Extinguisher Activate = German mode only.
- FRE Activate = German mode only.
- None Fire = No indication on display, creates a log entry.
- Cascade = Selects a delay in seconds on the device within the list This will go to alarm after the selected time so can be used as a further trigger source.
- Isolate Addresses = This allows a group of addresses (max 8 on the same loop) to be isolated from the trigger. Panel does not go to Fire, trigger is non-latching
- Isolate Zones = This allows a group of zones (max 8) to be isolated from the trigger. Panel does not go to Fire, trigger is non-latching

Non-Latching

Non-latch is a feature where the panel goes back into quiescent state when the Fire situation is cleared.

Day / Night

Devices affected:

- Optical-Heat – mode changes between heat or opto-heat mode.
- Heat – mode changes between Heat A1R and Head CS.

Allocate Zones/Devices

User can define between zones or addresses to be isolated on activation of the device. The isolate list button enables the user to enter upto 8 unique zones or addresses.

Figure 6. Device Outputs

Sounder Trigger

The output device can be programmed to respond to a specific trigger – globally, by zone, by address or by panel.

Delay Configuration

The output of a device when triggered can be delayed – based on a user defined value in minutes.

This programming option is enabled when a value other than zero is entered inside the 'Delay' window.

MCP Override

This option is a manual intervention override. When enabled, the delay can be overridden from any call point on the loop when triggered.

Allocation List

If the sounder trigger is by address, zone or panel, then the trigger source can be selected from the Allocation List box.Panel outputs

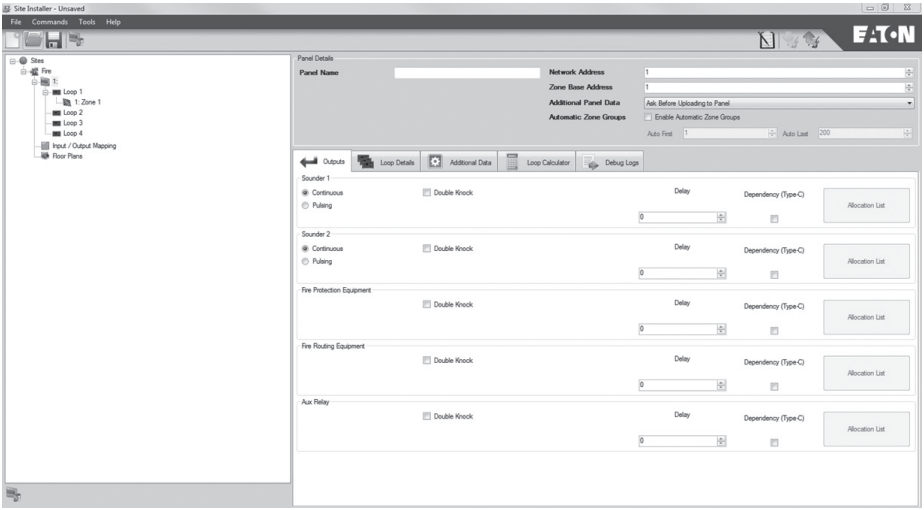
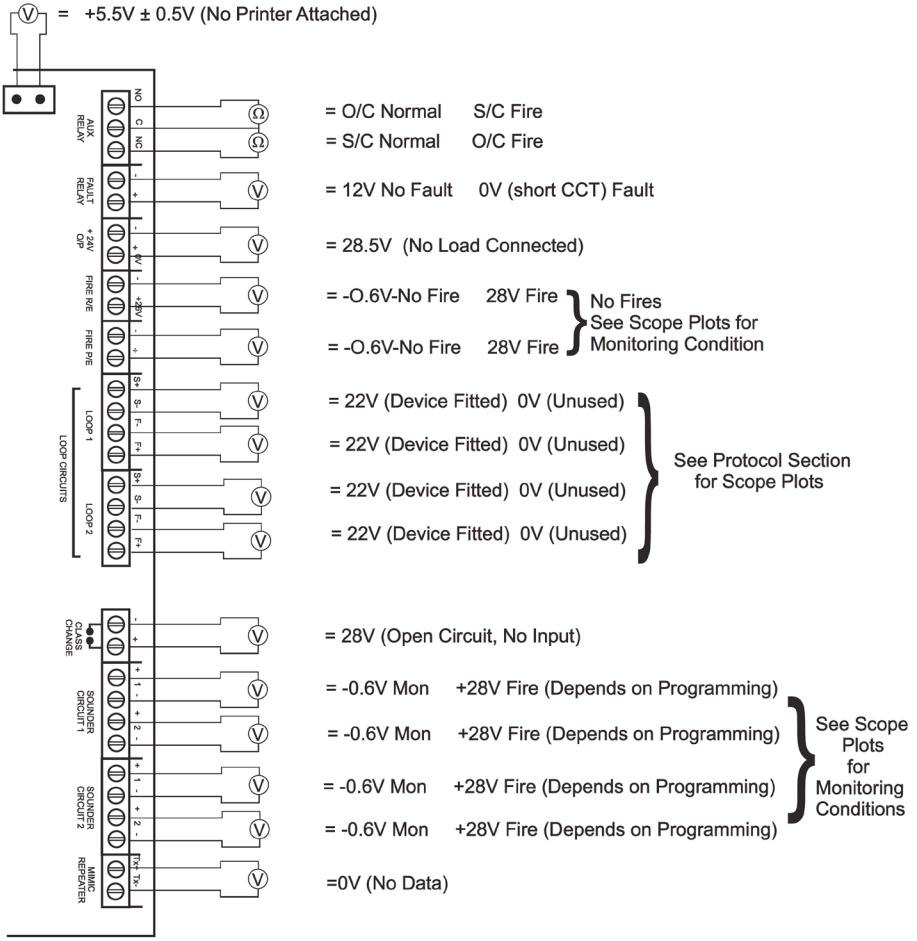


Figure 7. Panel Outputs

Dependency detection

Each panel output can be assigned a unique list of zones derived from the zones available on the loop, to activate this output, two unique zones from this list have to be in fire or alternatively any zone outside this list will trigger the output also. When the 'Dependency' box is checked - the 'Allocate device' button allows the user to populate this list.

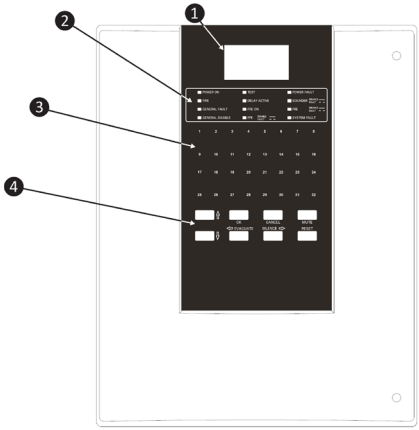
Panel Fault Finding



Panel Controls and Indicators

Panel Overview

Buzzer (Not shown) - An intentional buzzer 'intermittent' signal is used to indicate the disablement & test condition

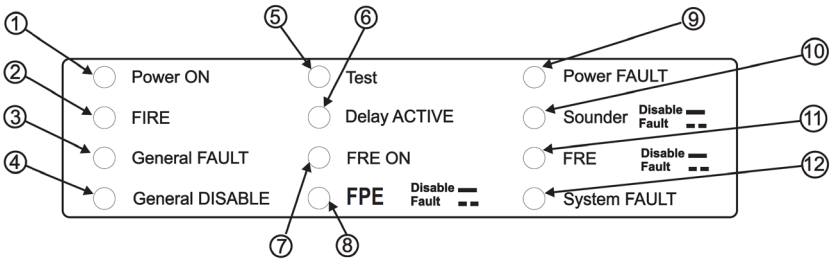


Panel Display

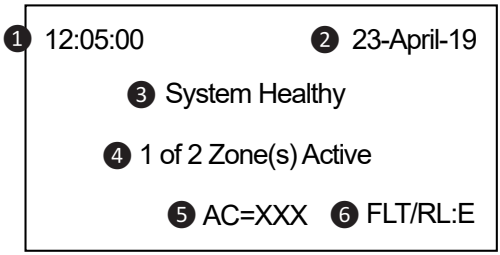
1. LCD Display
2. System LEDs
3. Zonal LEDs
4. Buttons

LED Display

LED	Name	Function	Action
①	Power On	Shows Panel is on (Mains Healthy)	Check Indicator is Illuminated
②	Fire	Indicator Panel has Detected a Fire	Implement Fire Action Procedure
③	General Fault	Monitors devices for faults e.g. Smoke detectors/Sounders	Report to System Supervisor
④	General Disable	Monitors panel for disablements	Report Fault to Service Dept
⑤	Test	Supervisor/Engineer is testing the system	Check with System Supervisor
⑥	Delay Active	Part of the system has been disabled	Check with System Supervisor
⑦	FRE On	Fire Routing Equipment relay activated	Report to System Supervisor
⑧	FPE	Indicates Fire Protecting Equipment status	Check with System Supervisor
⑨	Power Fault	Indicates PSU fault	Check with System Supervisor
⑩	Sounder	Indicates the Sounder status	Check with System Supervisor
⑪	FRE	Indicates Fire Routing Equipment status	Check with System Supervisor
⑫	System Fault	Panel has a fault	Report to System Supervisor



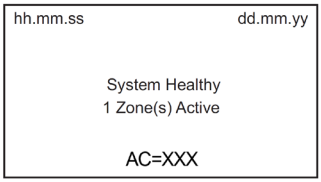
LCD Display Overview



	Name	Function
1	Time	Displays the current time
2	Date	Displays the current date
3	System Health	Displays the current system health
4	Active Zones	Displays the number of zones and if they are active
5	Alarm Counter	The alarm counter 'AC==xxx' represents the total number of instances the CIE has entered the alarm state. It increments on the state change & not the number of alarm events
6	fault relay disablement state	FLT/RL:E = Fault Relay Enabled FLT/RL:D = Fault Relay Disabled
7	—	PN, LP AD, ZN = Panel, Loop, Address & Zone. (Not pictured) Appears on an event screen

System Healthy

The panel is operated via an 8 button keypad. The default healthy screen is shown below. From this screen all the panels functions can be operated. Press any key to prompt the passcode screen.



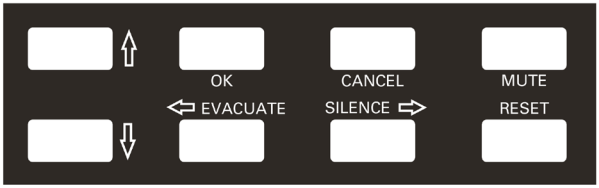


Figure 8. Default System Healthy screen

View Event

The View Events screen is shown below. The events screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default. Press OK and scroll through the list of events using the Up and Down arrow buttons.

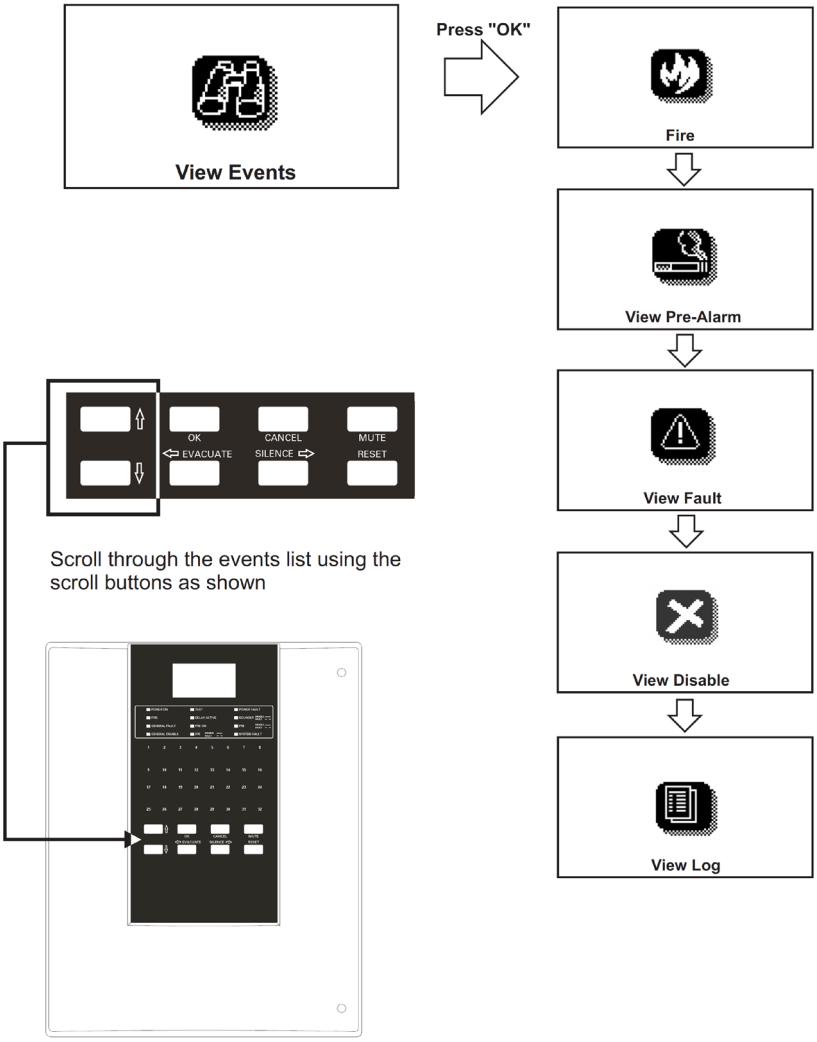
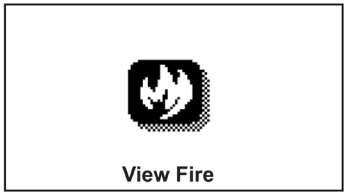
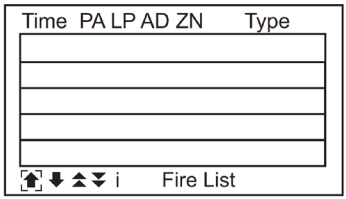


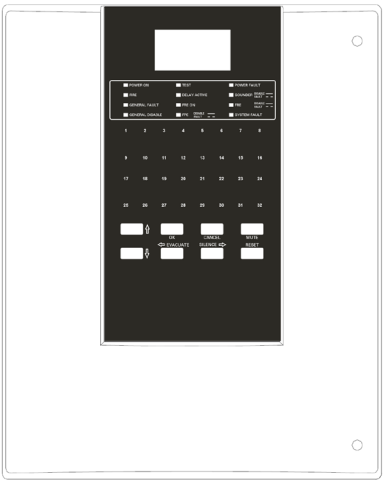
Figure 9. View Events screen

Fire Event

The Fire screen is shown below. From this screen all the panels functions can be operated. Press any key to prompt the passcode screen







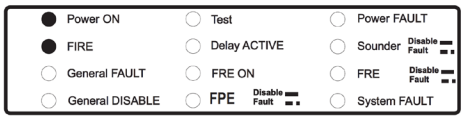


Figure 10. Fire Event screen

View Fires

The View Fires screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default. Press OK and scroll through the list of events using the Up and Down arrow buttons.

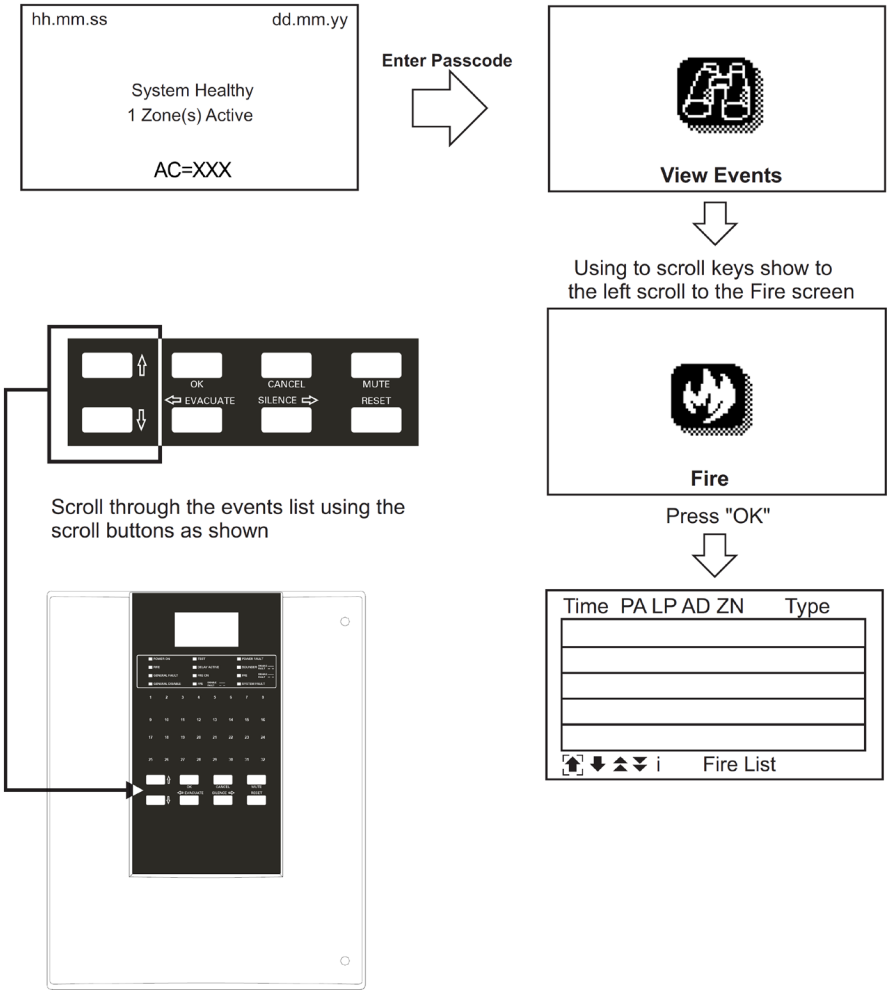


Figure 11. View Fires screen

View Pre-Alarm

The View Pre-Alarm screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.
Press OK and scroll through the list of events using the Up and Down arrow buttons.

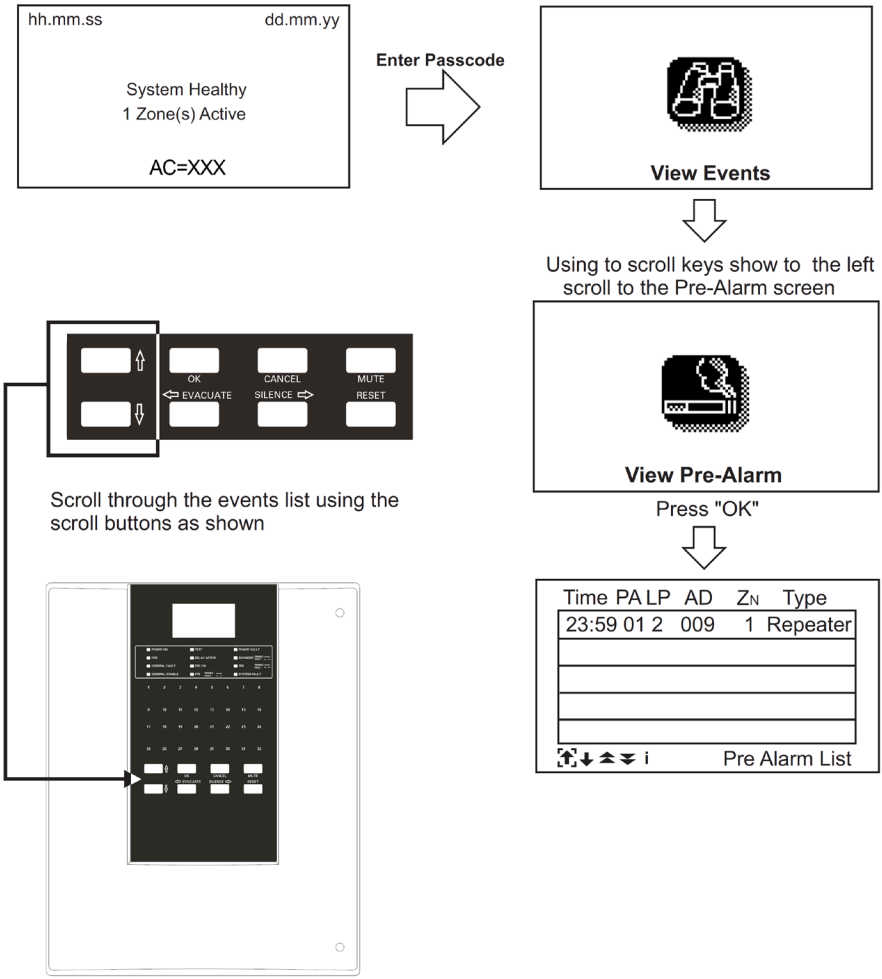


Figure 12. View Pre-Alarm screen

View Fault

The View Fault screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.
Press OK and scroll through the list of events using the Up and Down arrow buttons.

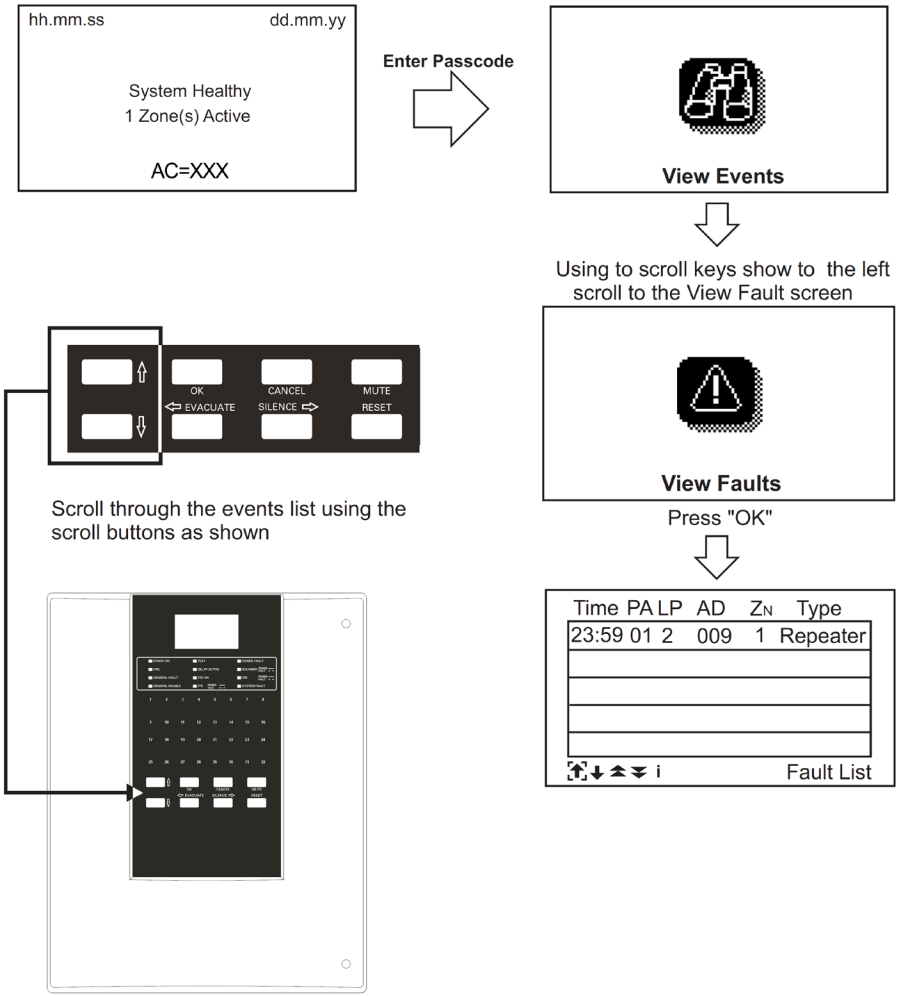


Figure 13. View Fault screen

View Disabled Address

The View Disabled Address screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default. Press OK and scroll through the list of events using the Up and Down arrow buttons.

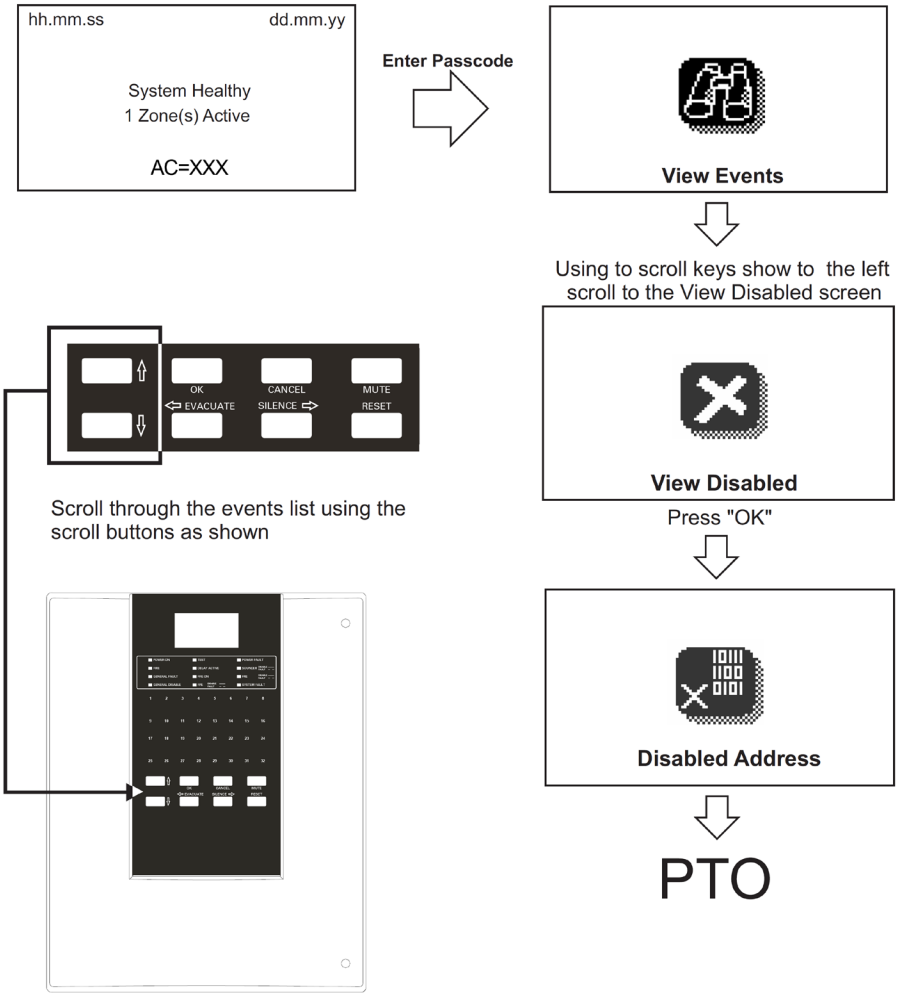


Figure 14. View Disabled Address screen

View Disabled Address (continued)

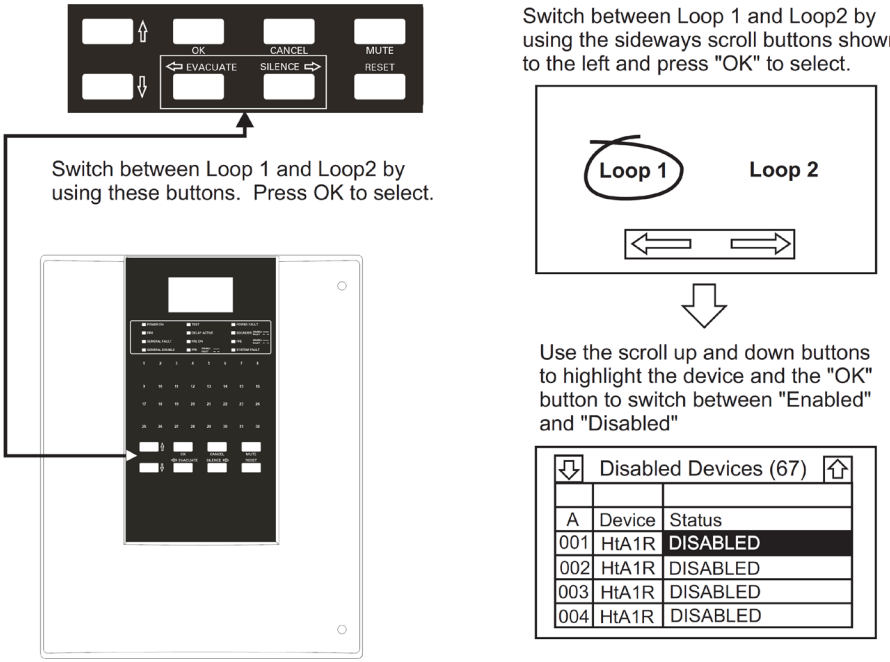


Figure 15. View Disabled Address (continued)

View Disabled Zone

The View Disabled Zone screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default. Press OK and scroll through the list of events using the Up and Down arrow buttons.

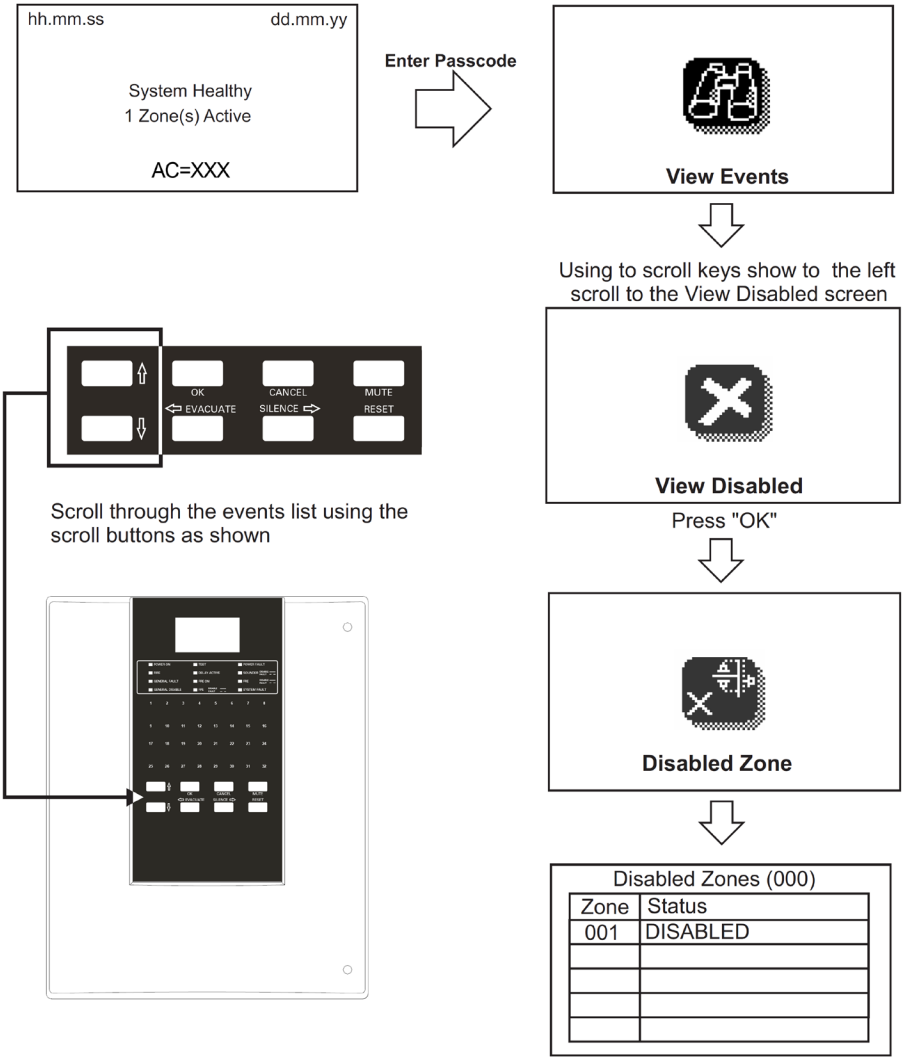


Figure 16. View Disabled Zone screen

View Disabled I/O

The View Disabled I/O screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default. Press OK and scroll through the list of events using the Up and Down arrow buttons.

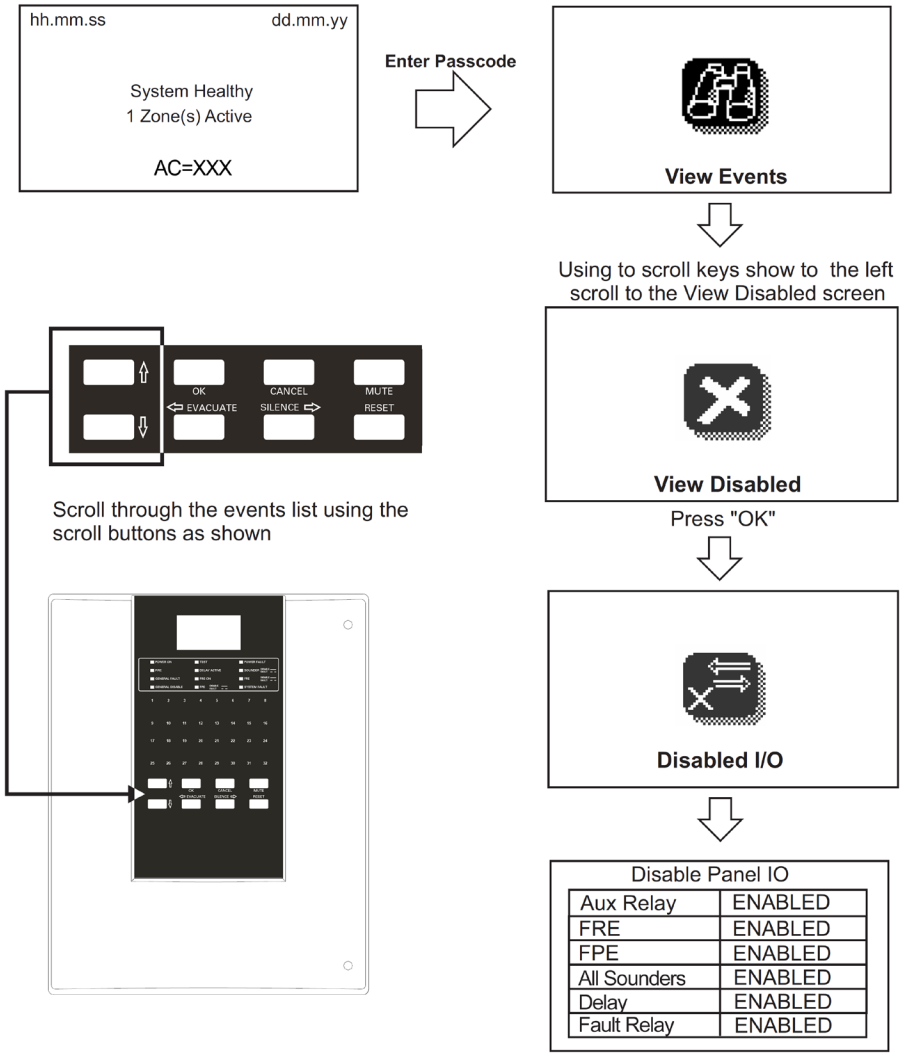


Figure 17. View Disabled I/O screen

View Log

The View Log screen is accessed as shown below. The log screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default. Press OK and scroll through the list of events using the Up and Down arrow buttons.

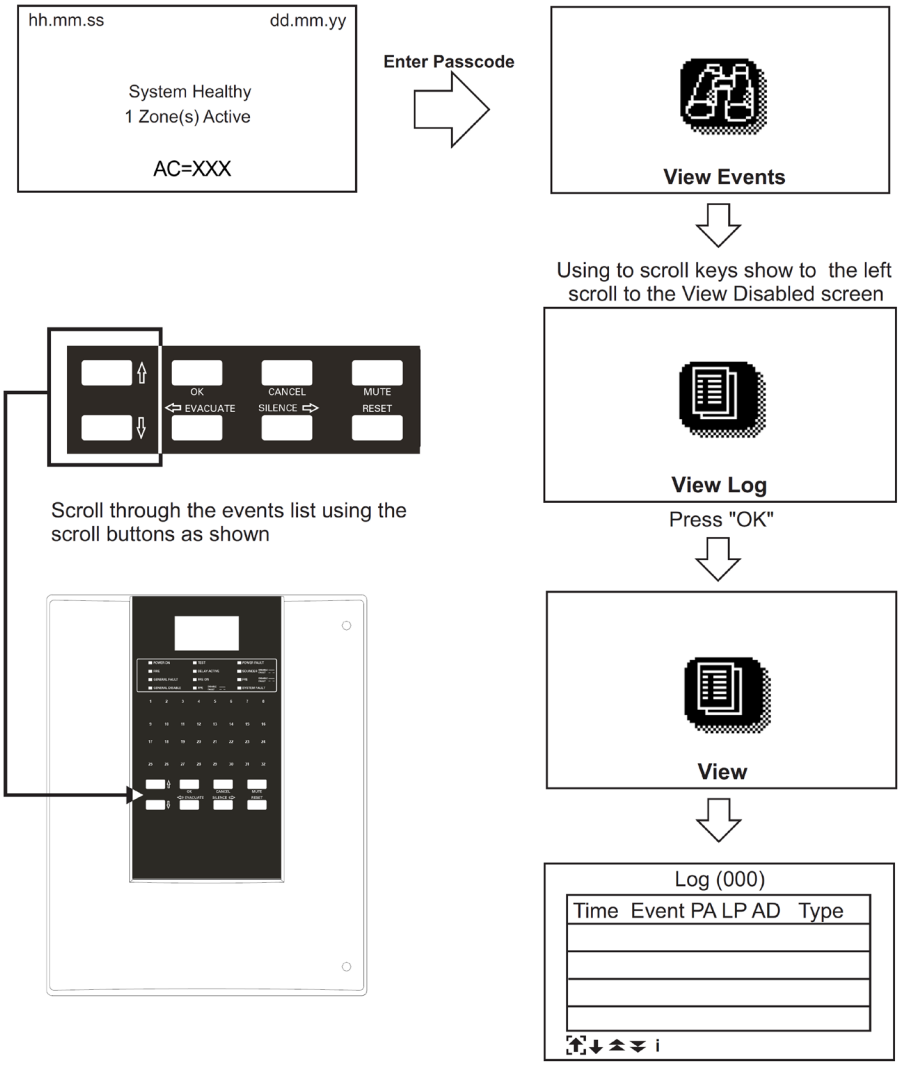


Figure 18. View Log screen

Operational description of the event log

- In zone test state
  - A test event log is provided allowing the user to scroll the events.
  - A test indication counter is supported, providing the user with test event count for any suppressed data as per 10.3.3 a
- Subsequent fire state
  - The test event log is suppressed as per 7.5.2 a
  - The activated test zones can be accessed via log filter if required. (subject to 30 seconds max from last user interrogation

Operations (Soft Reset)

The Soft Reset screen is accessed as shown below. The Operations screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the events screen by default. Press the Scroll Down button until the Soft Reset screen is shown as illustrated below. Press OK and scroll through the list of options using the Up and Down arrow buttons and pressing OK to select.

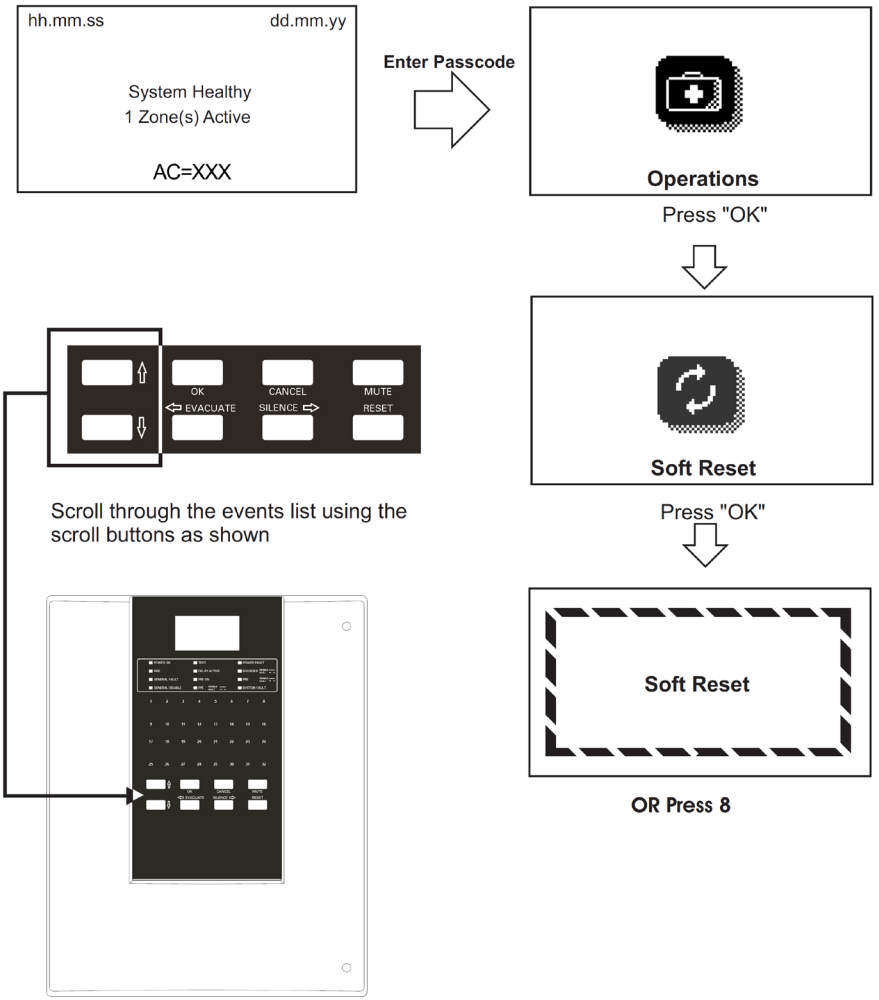


Figure 19. Operations (Soft Reset) screen

Operations (Evacuate)

The Evacuate screen is accessed as shown below. The Operations screen is accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the events screen by default. Press the Scroll Down button until the Evacuate screen is shown as illustrated below. Press OK and scroll through the list of options using the Up and Down arrow buttons and pressing OK to select.

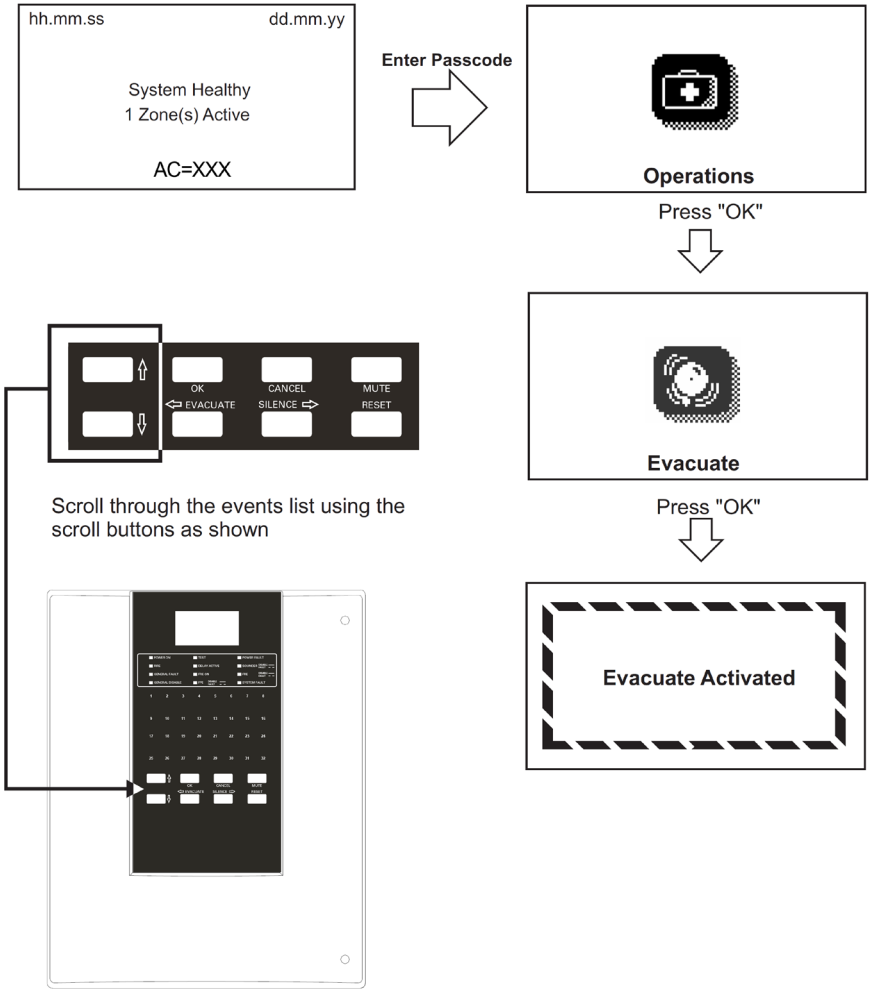


Figure 20. Operations (Evacuate) screen

Operations (Silence Alarms)

The Silence Alarms screen is accessed as shown below. The Operations screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the events screen by default. Press the Scroll Down button until the Silence Alarms screen is shown as illustrated below.

Press OK and scroll through the list of options using the Up and Down arrow buttons. Press OK to select.

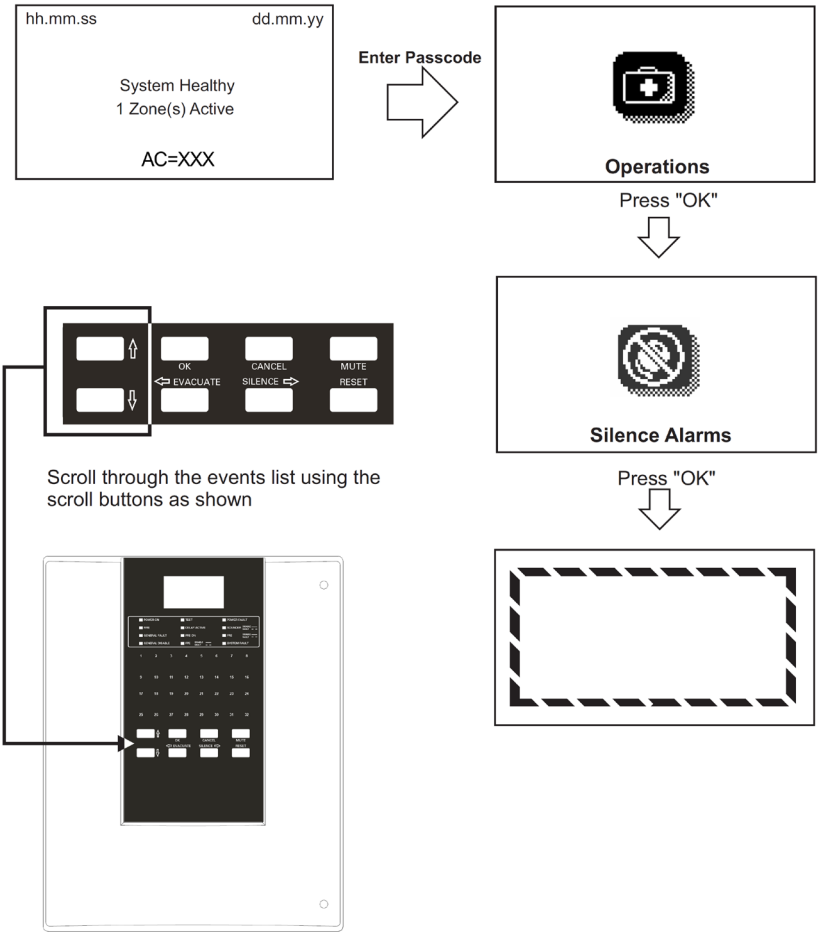


Figure 21. Operations (Silence Alarms) screen

Operations (Lamp Test)

The Lamp Test screen is accessed as shown below. The Operations screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the events screen by default, press the Scroll Down button until the Lamp Test screen is shown as illustrated below.

Press OK and scroll through the list of options using the Up and Down arrow buttons and pressing OK to select.

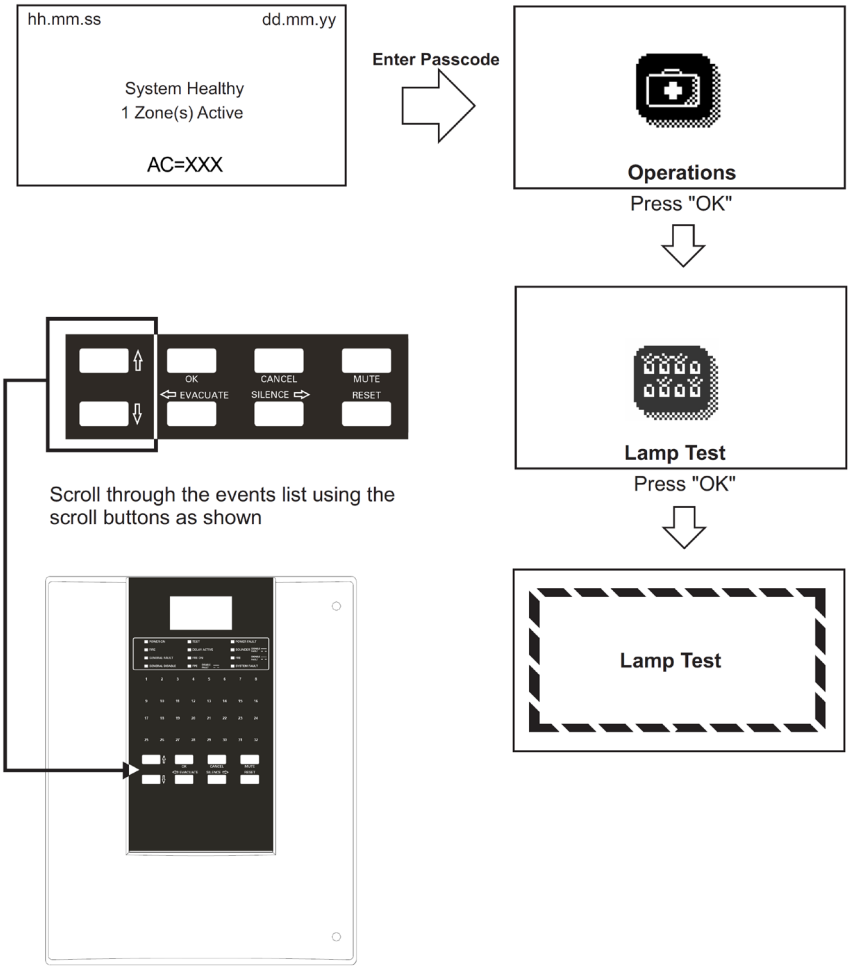


Figure 22. Operations (Lamp Test) screen

Operations (Weekly Test)

The Weekly Test screen is accessed as shown below. The Operations screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the events screen by default. Press the Scroll Down button until the Weekly Test screen is shown as illustrated below.

Press OK and scroll through the list of options using the Up and Down arrow buttons and pressing OK to select.

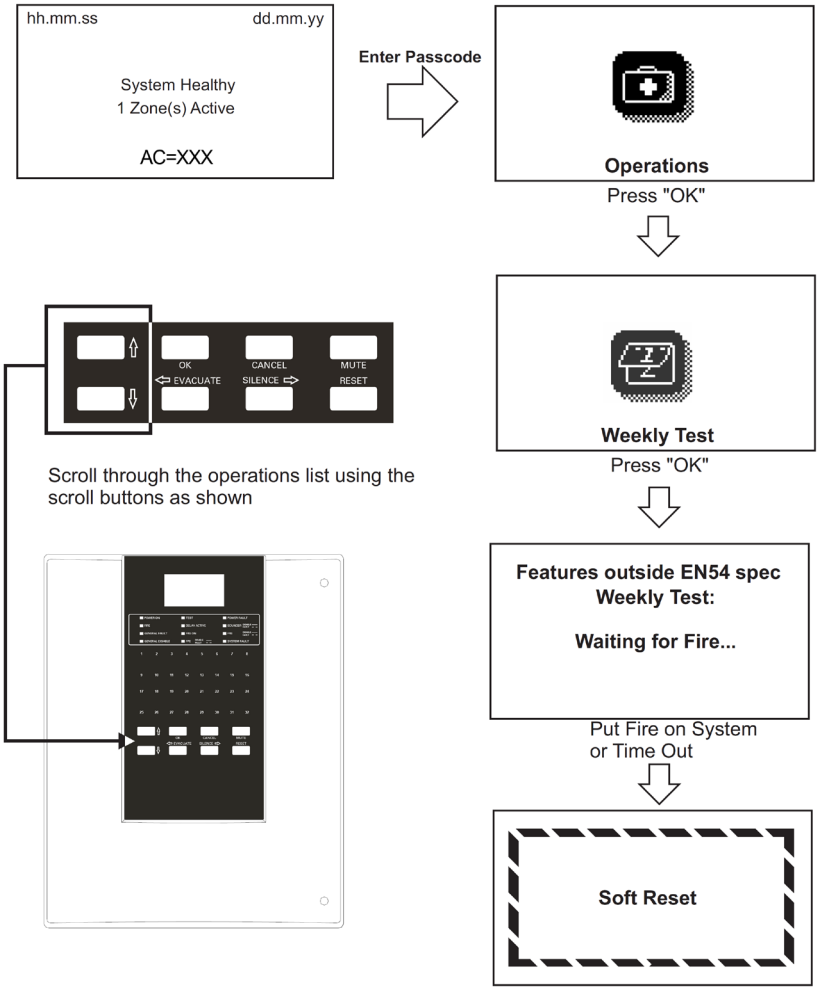


Figure 23. Operations (Weekly Test) screen

Access Level 2

Commissioning

The Commissioning screen is accessed as shown below. The commissioning screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

First time power up will autolearn when button 4 is held when powered. Panel will continue to reset if no devices found on Autolearn.

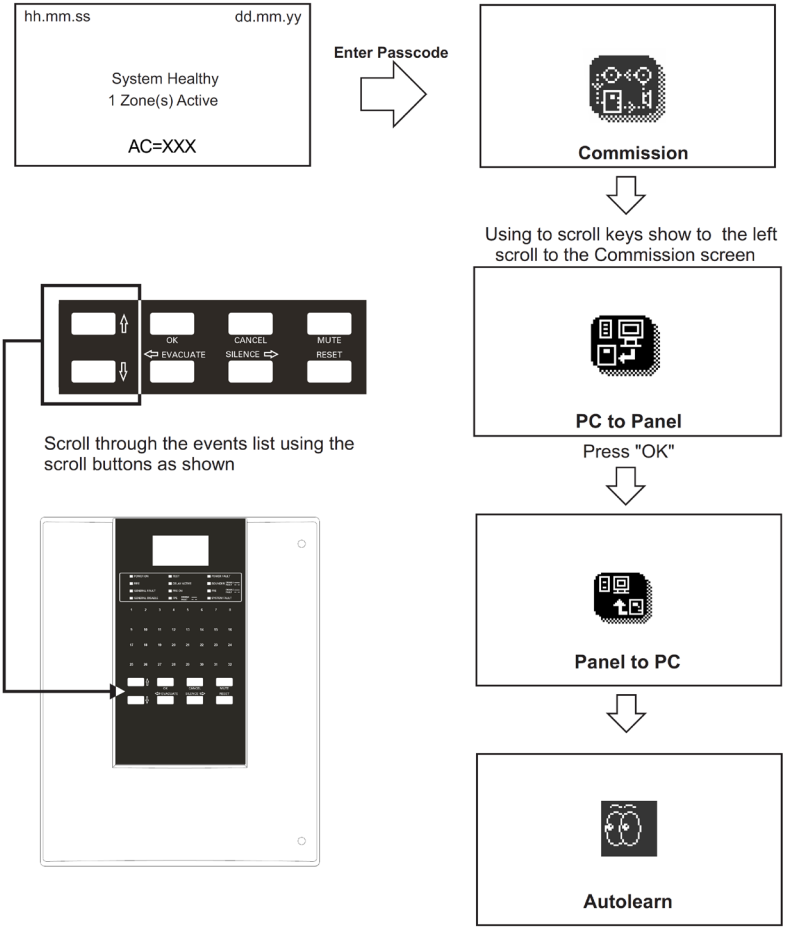


Figure 24. Commissioning screen

Panel Settings (Erase Log)

The Erase Log screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

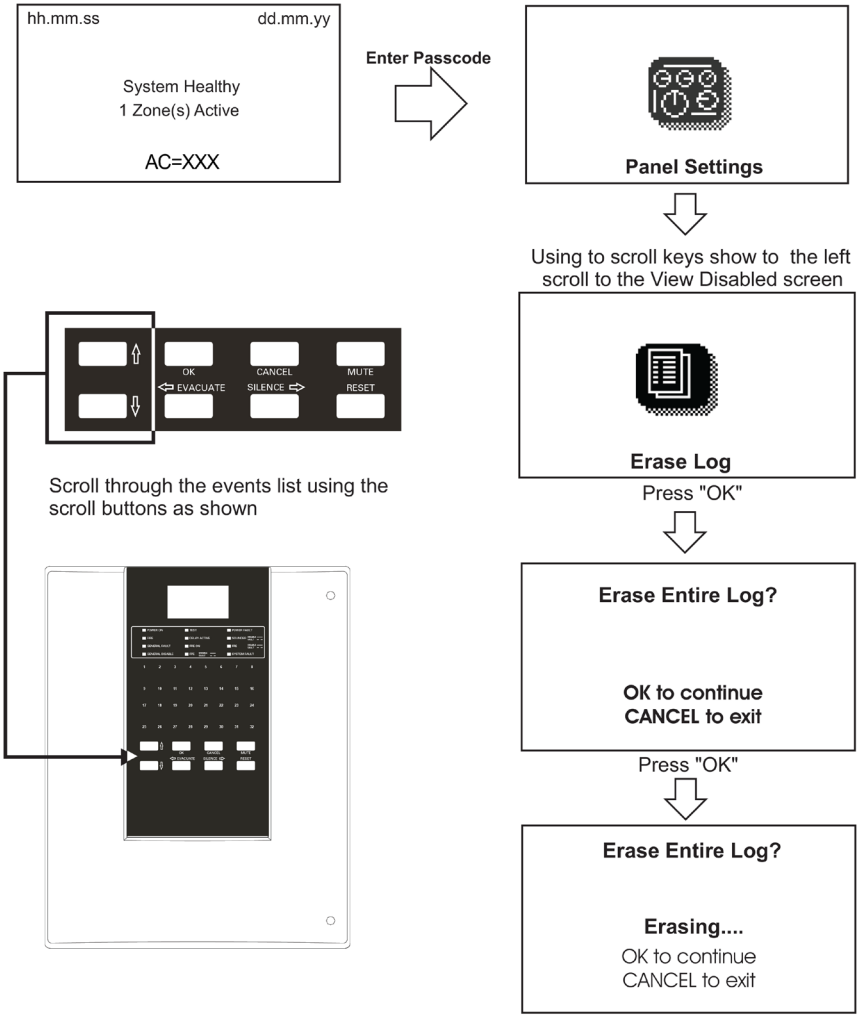


Figure 25. Panel Settings (Erase Log) screen

Panel Settings (Reset Wait Mode)

The Reset Wait Mode screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

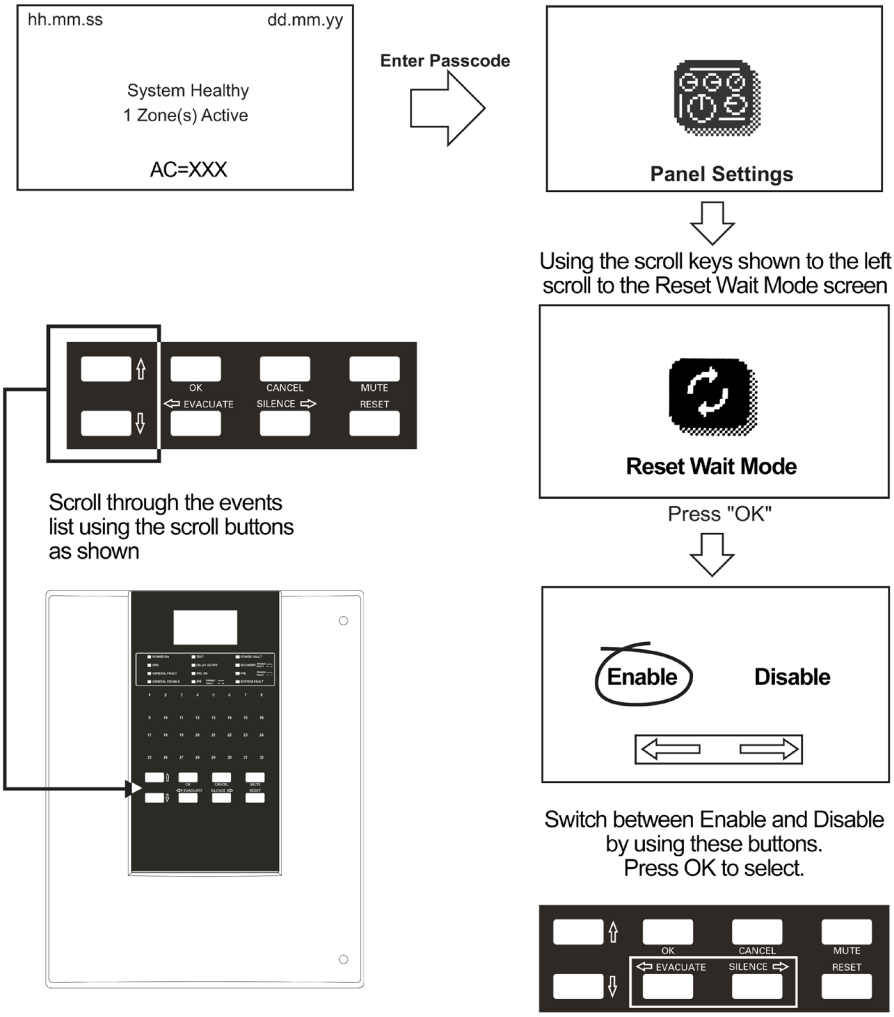


Figure 26. Panel Settings (Reset Wait Mode) screen

Panel Settings (Zone Re-sound Mode)

The Zone Re-sound Mode screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

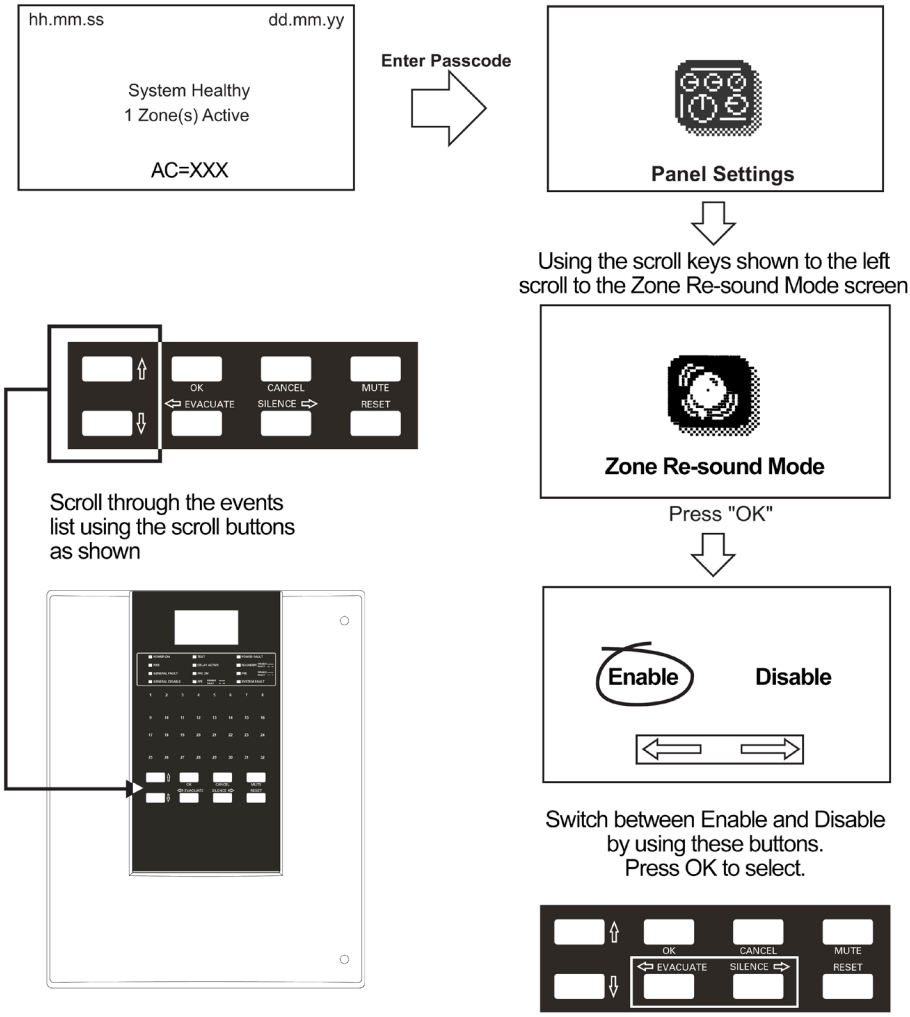


Figure 27. Panel Settings (Zone Re-sound Mode) screen

Panel Settings (Change Password)

The Change Password screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

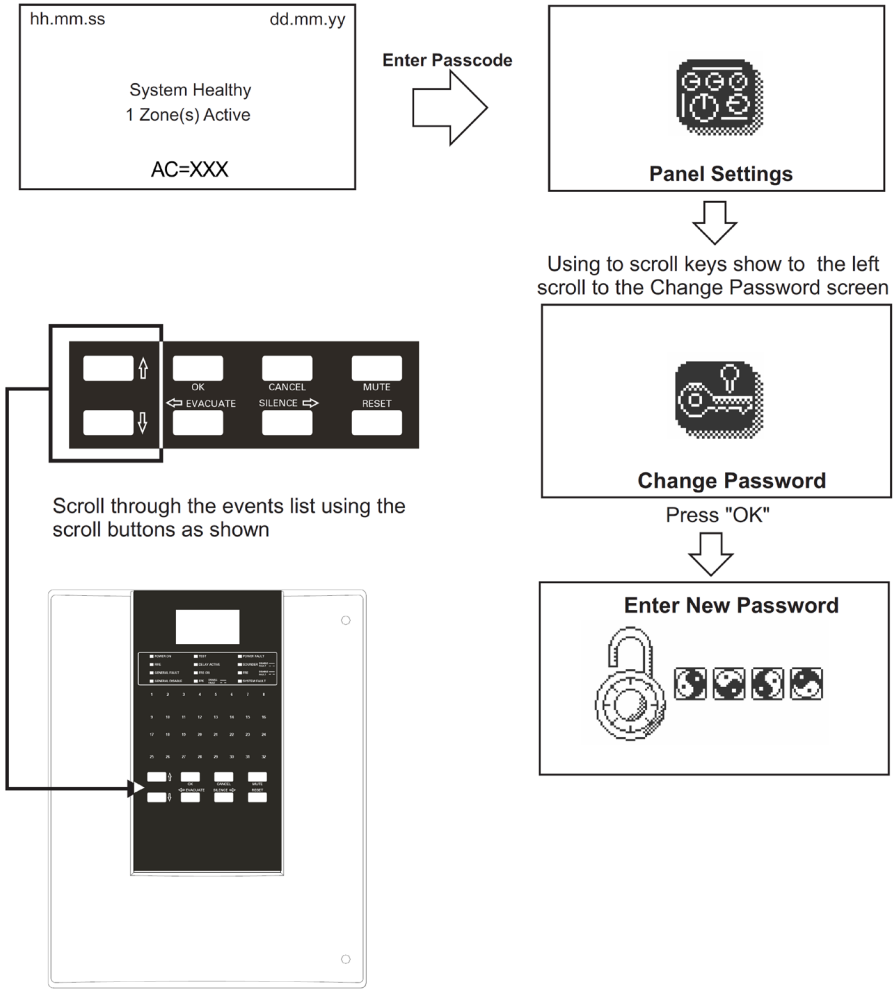


Figure 28. Panel Settings (Change Password) screen

Panel Settings (Reset Password)

The Reset Password screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

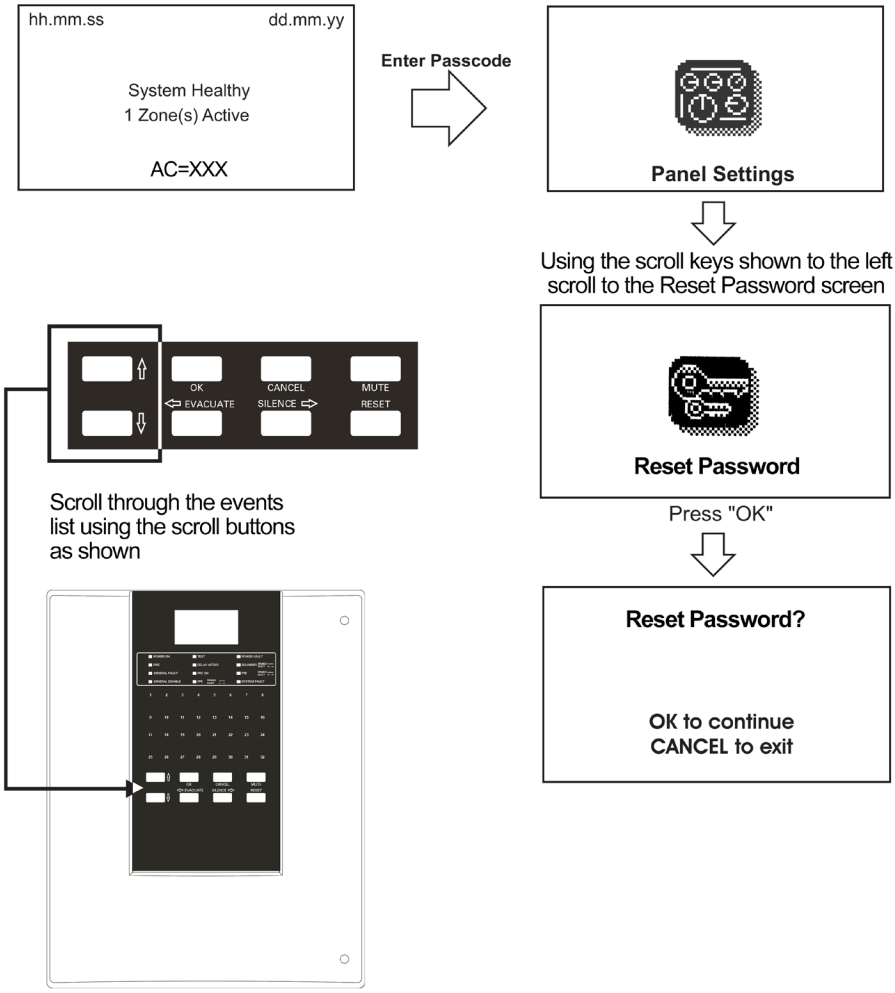


Figure 29. Panel Settings (Reset Password) screen

Panel Settings (Change Language)

The Change Language screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

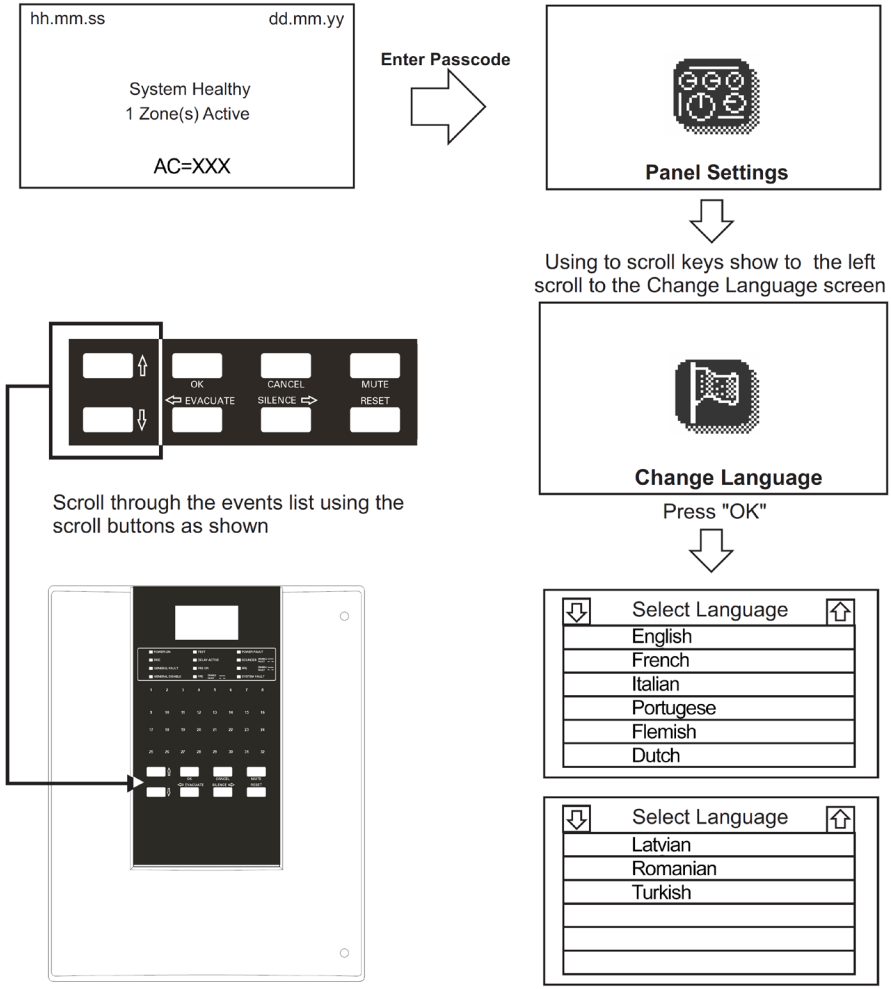


Figure 30. Panel Settings (Change Language) screen

Panel Settings (Date/Time)

The Date/Time screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

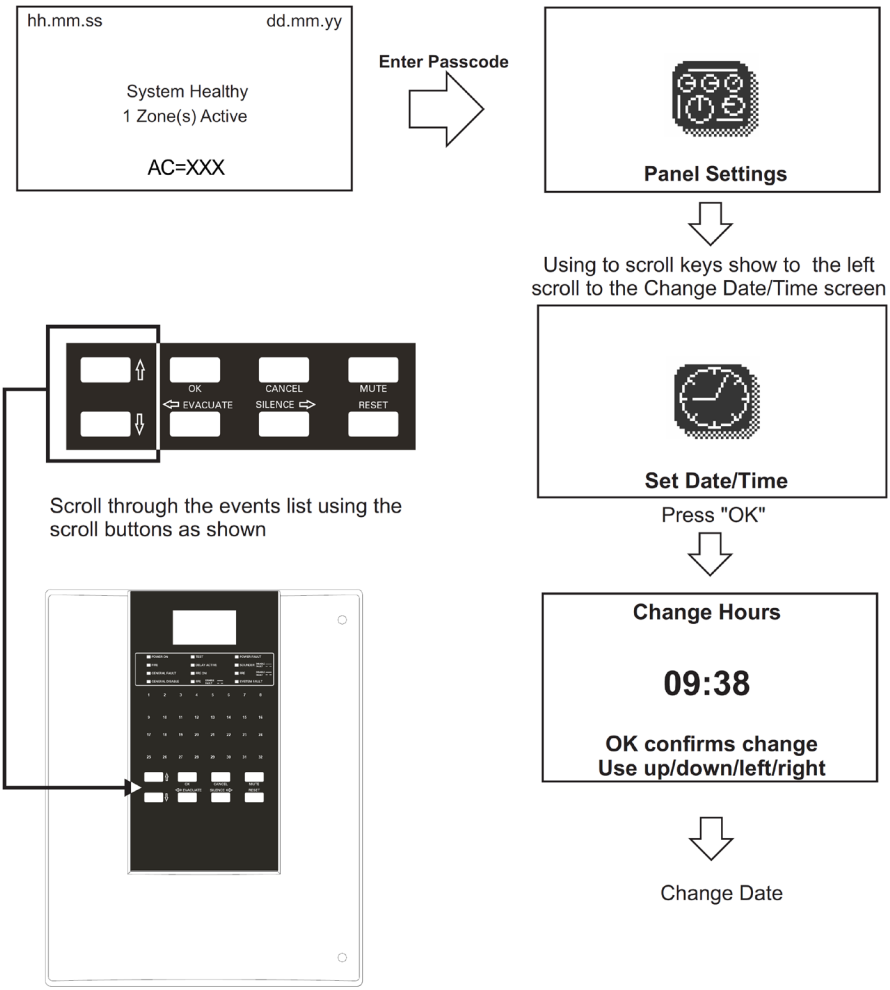


Figure 31. Panel Settings (Date/Time) screen

Panel Settings (System Details)

The System Details screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

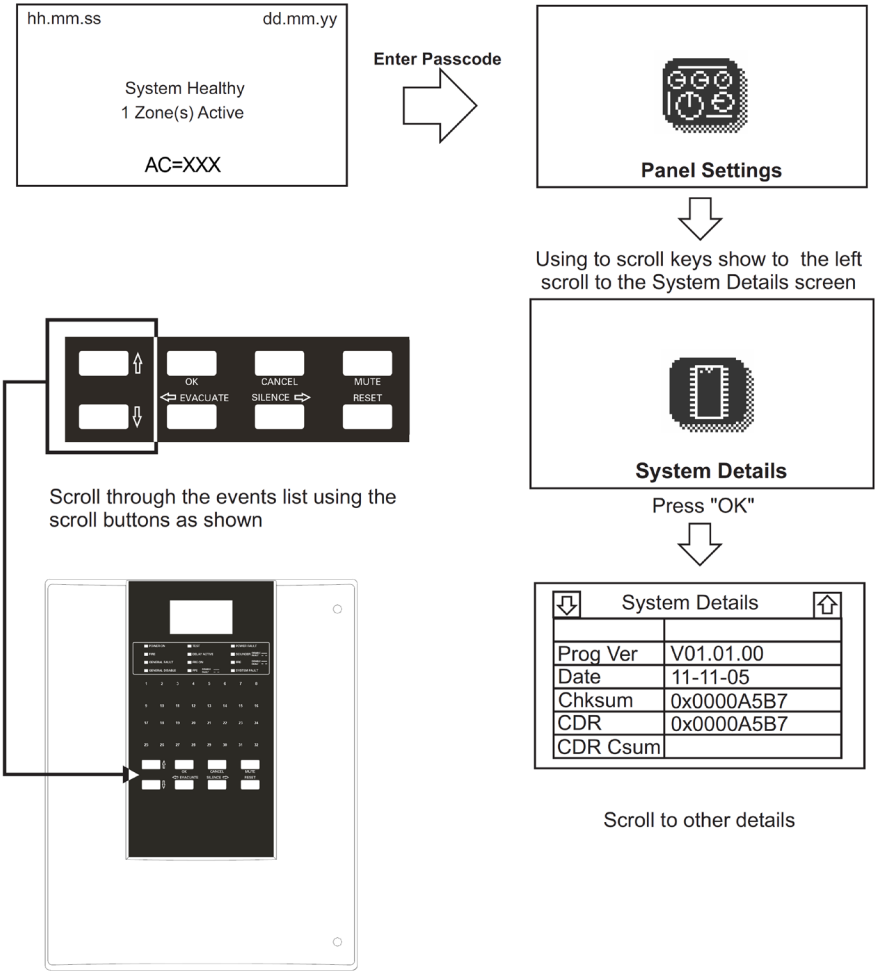


Figure 32. Panel Settings (System Details) screen

Panel Settings (Australian Mode)

The Australian Mode screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

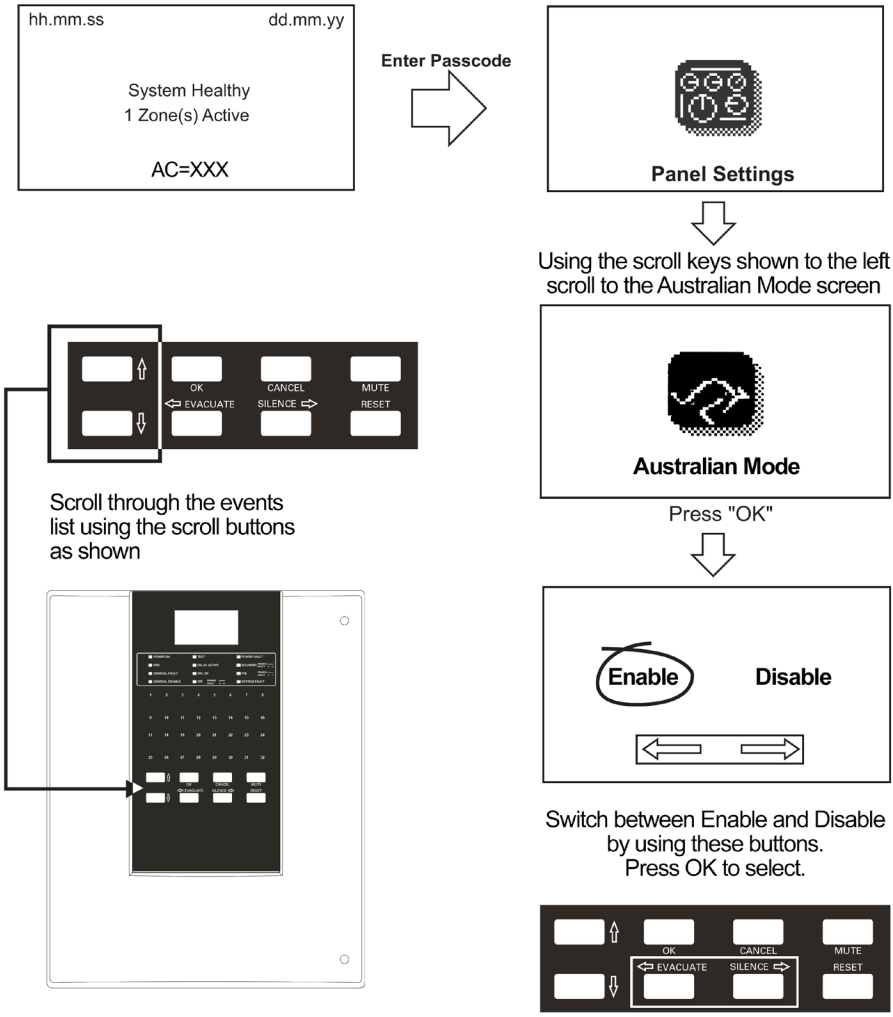


Figure 33. Panel Settings (Australian Mode) screen

Testing (Test Device)

The Test Device screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

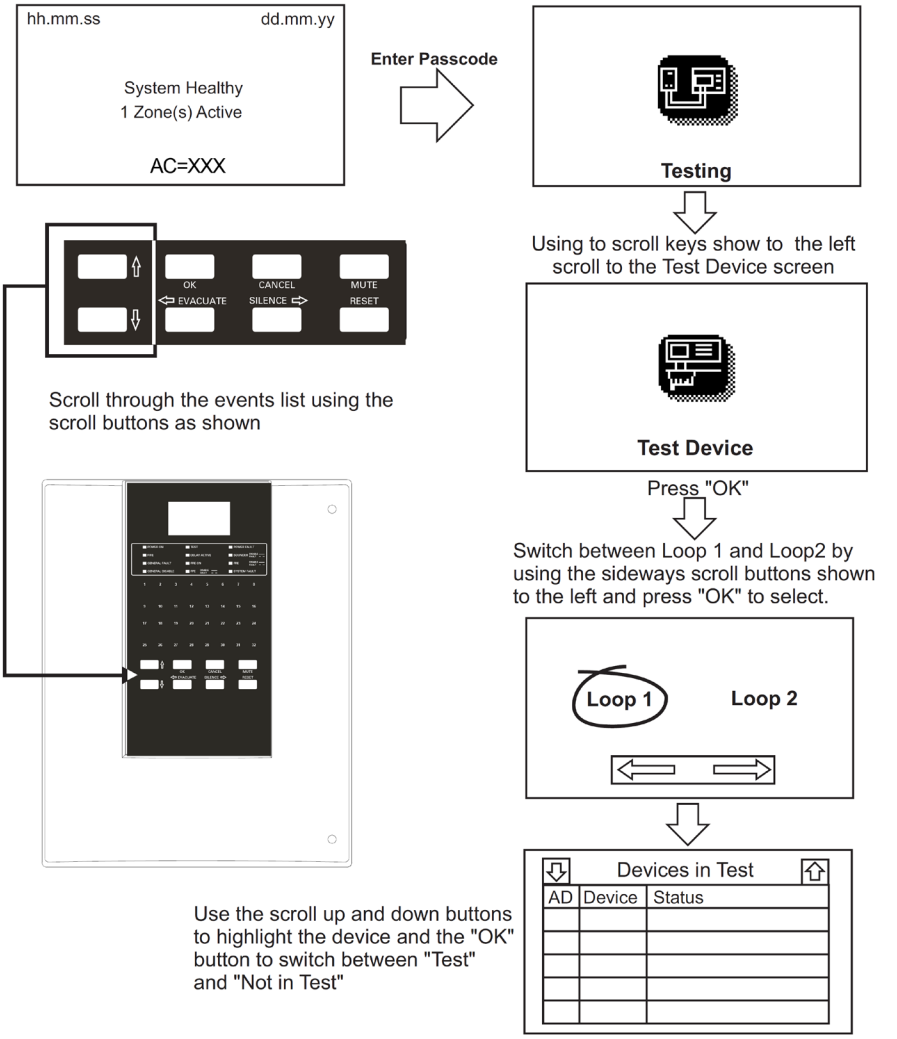
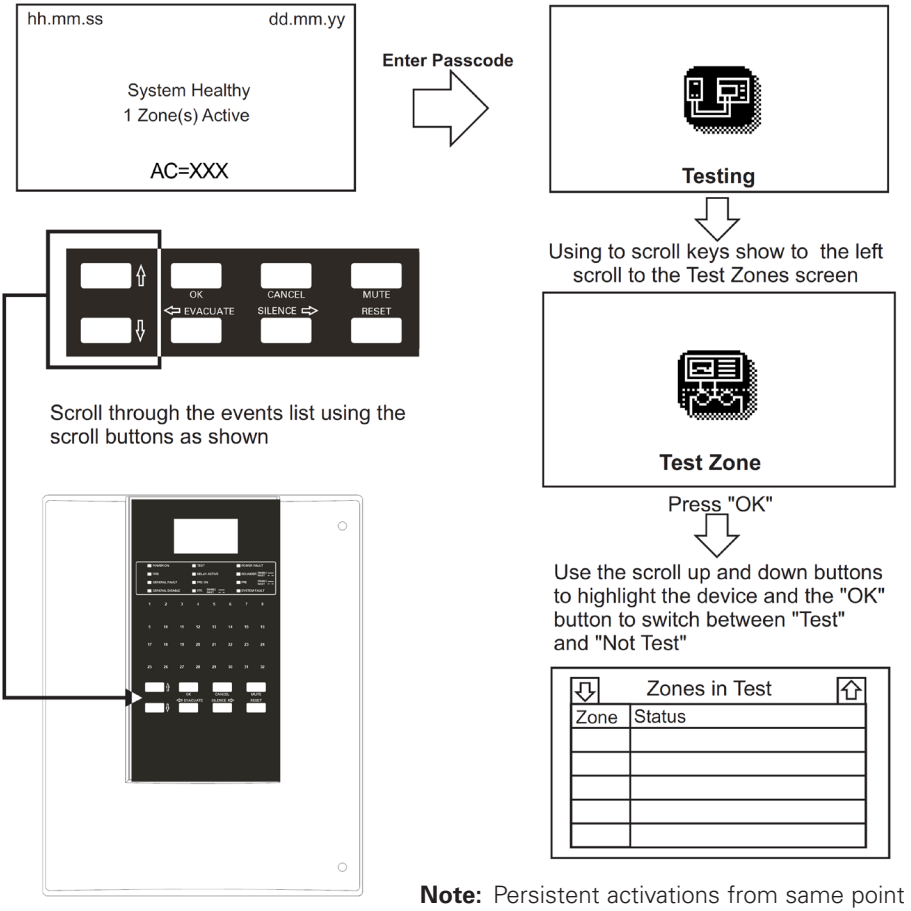


Figure 34. Testing (Test Device) screen

Testing (Test Zone)

The Test Device screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.



Note: Persistent activations from same point will result in a repeated test cycle

Figure 35. Testing (Test Zone) screen

Testing (Test Sound Levels)

The Test Sound Levels screen is accessed as shown below. The testing screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

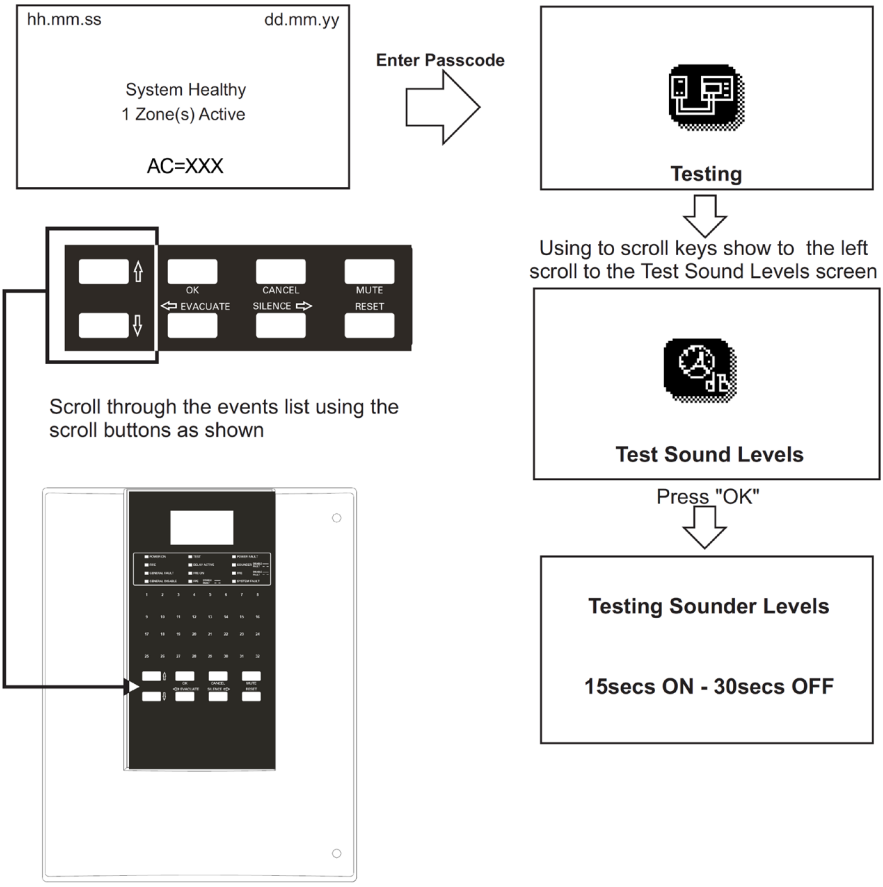


Figure 36. Testing (Test Sound Levels) screen

Testing (One Man Walk Test)

The One Man Walk Test screen is accessed as shown below. The testing screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

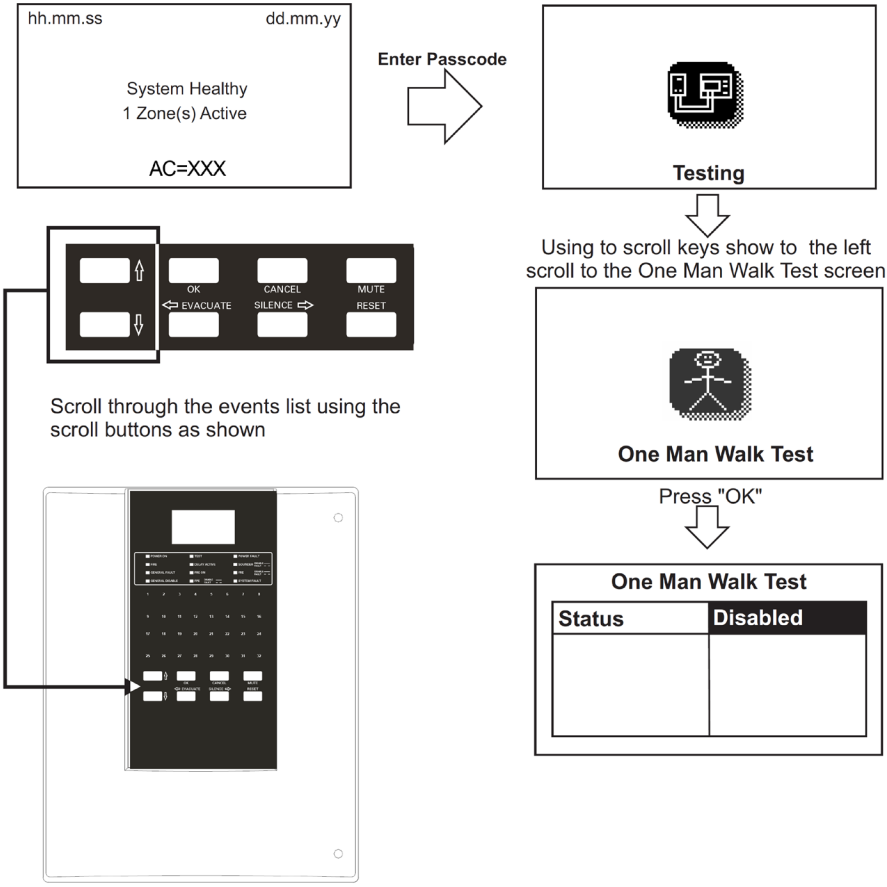


Figure 37. Testing (One Man Walk Test) screen

Testing (Global Flashing LED) screen

The Global Flashing LED screen is accessed as shown below. The testing screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

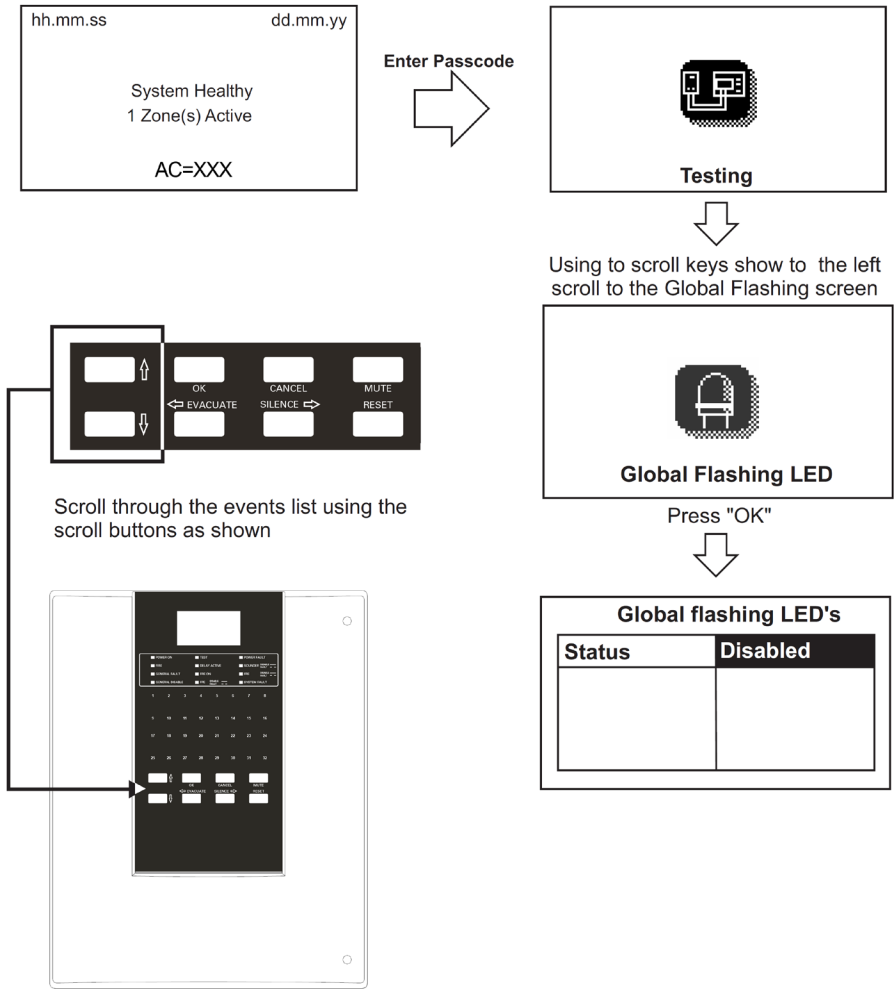


Figure 38. Testing (Global Flashing LED) screen

Testing (Analogue Levels)

The Analogue Levels screen is accessed as shown below. The testing screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

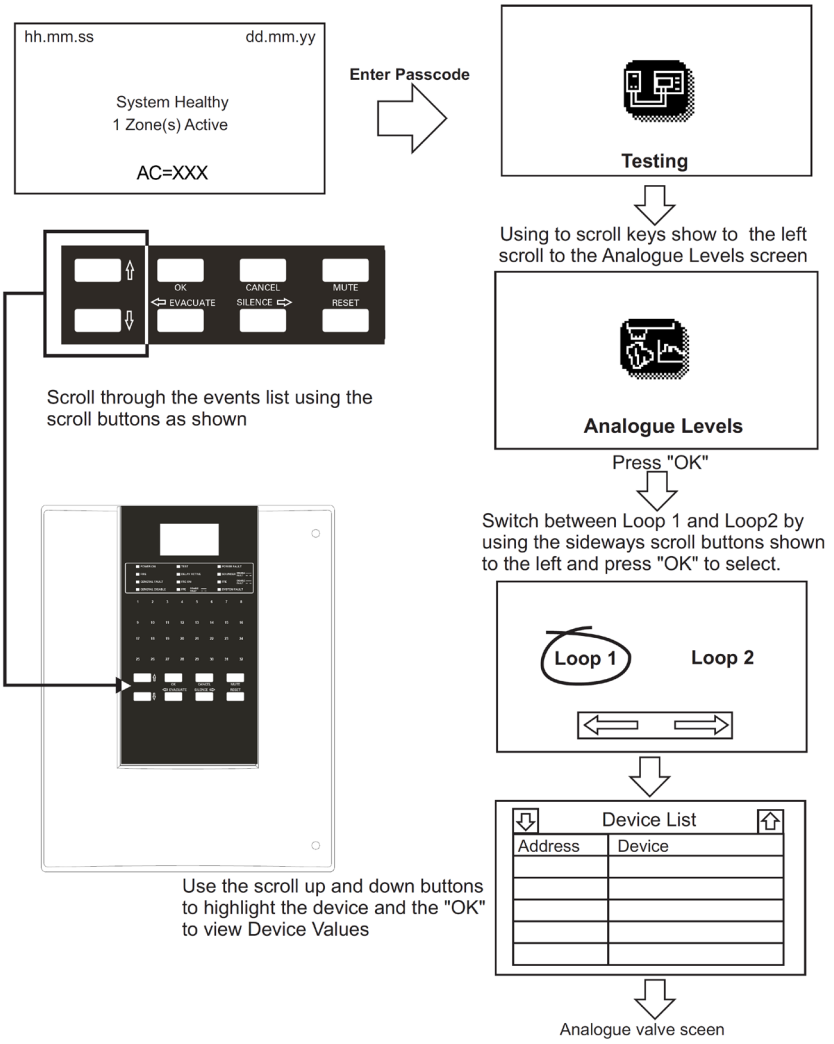
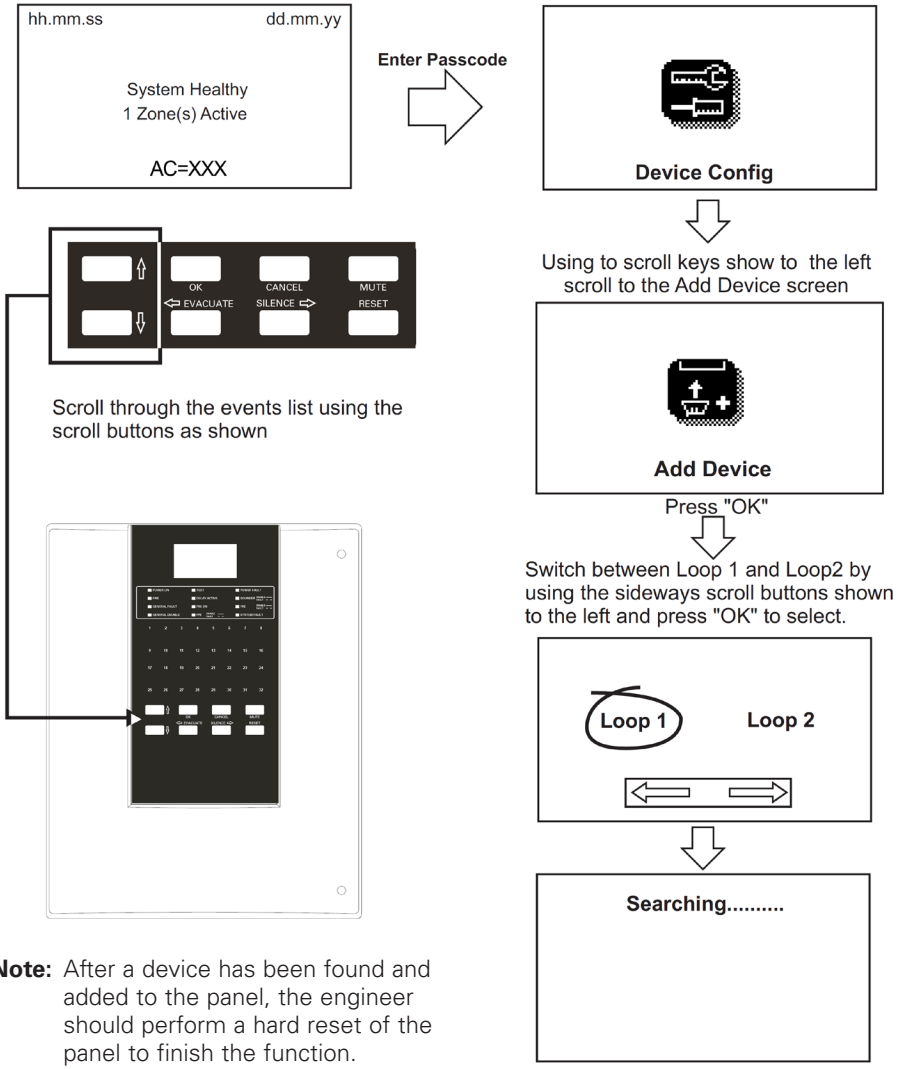


Figure 39. Testing (Analogue Levels)

Device Config (Add Device)

The Add Device screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.



Note: After a device has been found and added to the panel, the engineer should perform a hard reset of the panel to finish the function.

Figure 40. Device Config (Add Device) screen

Device Config (Delete Device)

The Delete Device screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

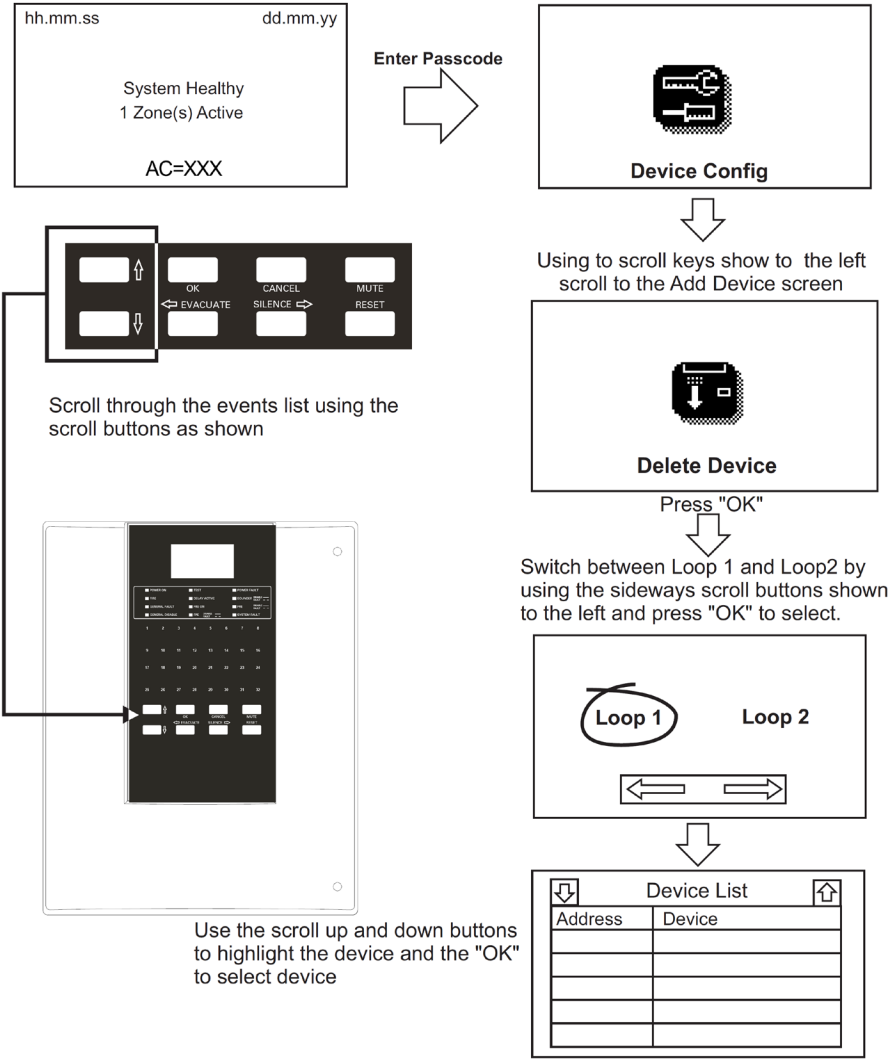


Figure 41. Device Config (Delete Device) screen

Device Config (Enable/Disable Address)

The Enable/Disable Address screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

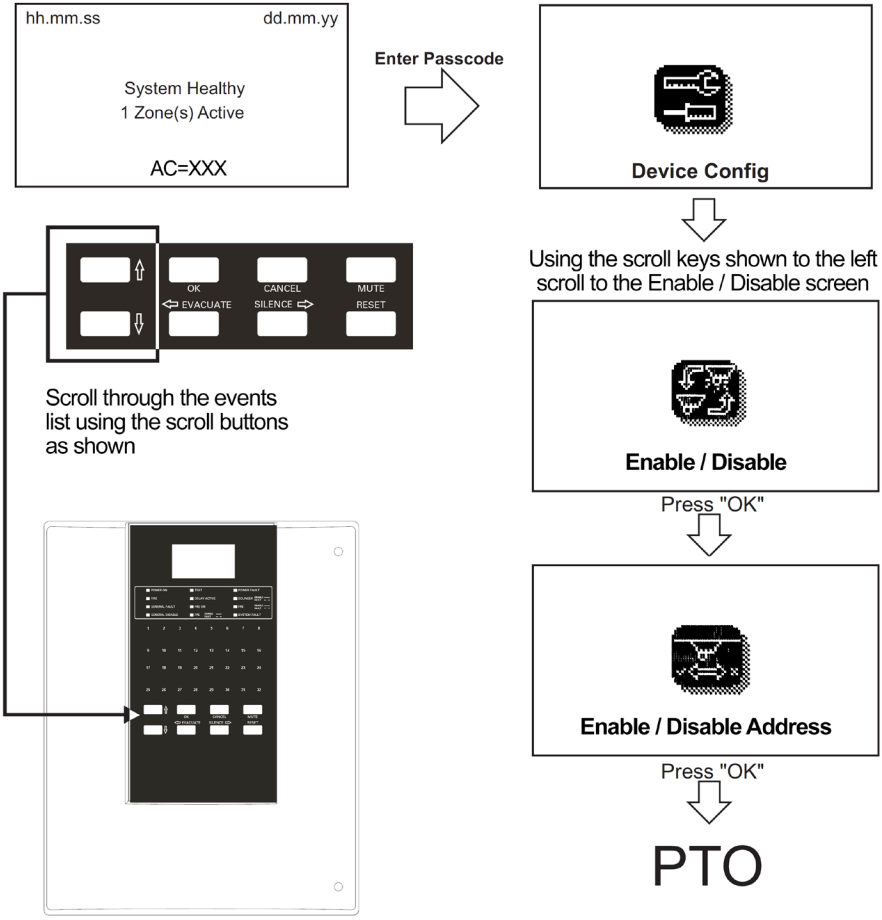


Figure 42. Device Config (Enable/Disable Address) screen

Enable/Disable Address (continued)

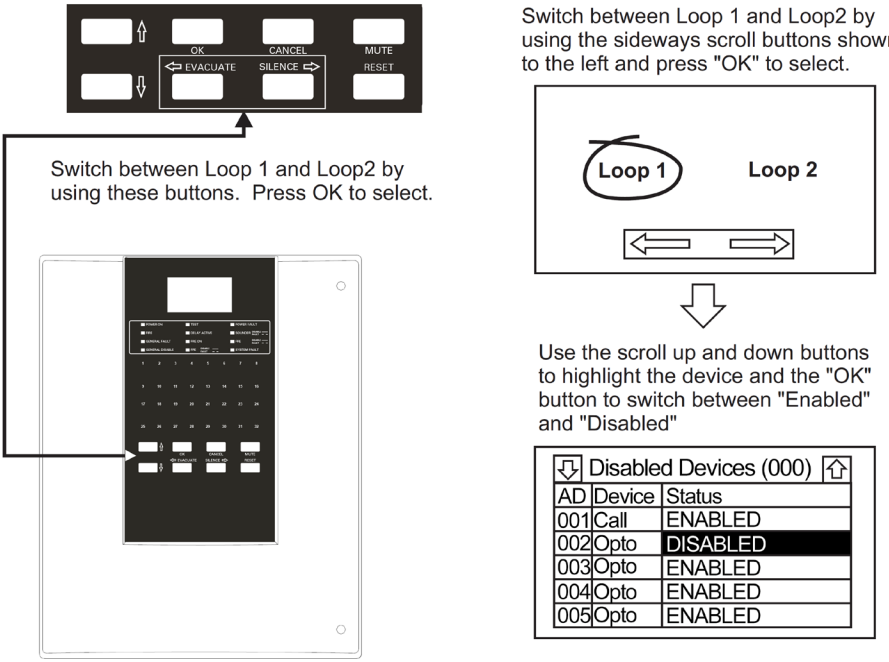


Figure 43. Device Config (Enable/Disable Address) screen (continued)

Device Config (Enable/Disable Zone)

The Enable/Disable Zone screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

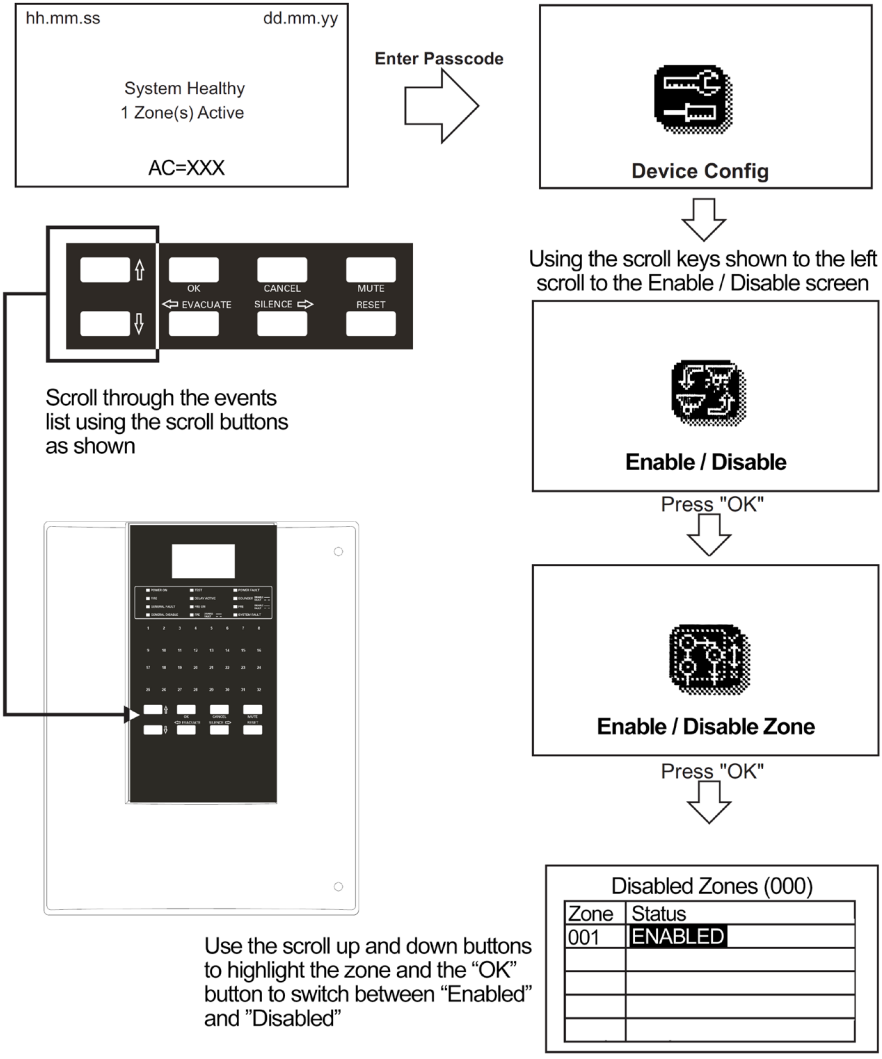


Figure 44. Device Config (Enable/Disable Zone) screen

Device Config (Enable/Disable I/O)

The Enable/Disable I/O screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

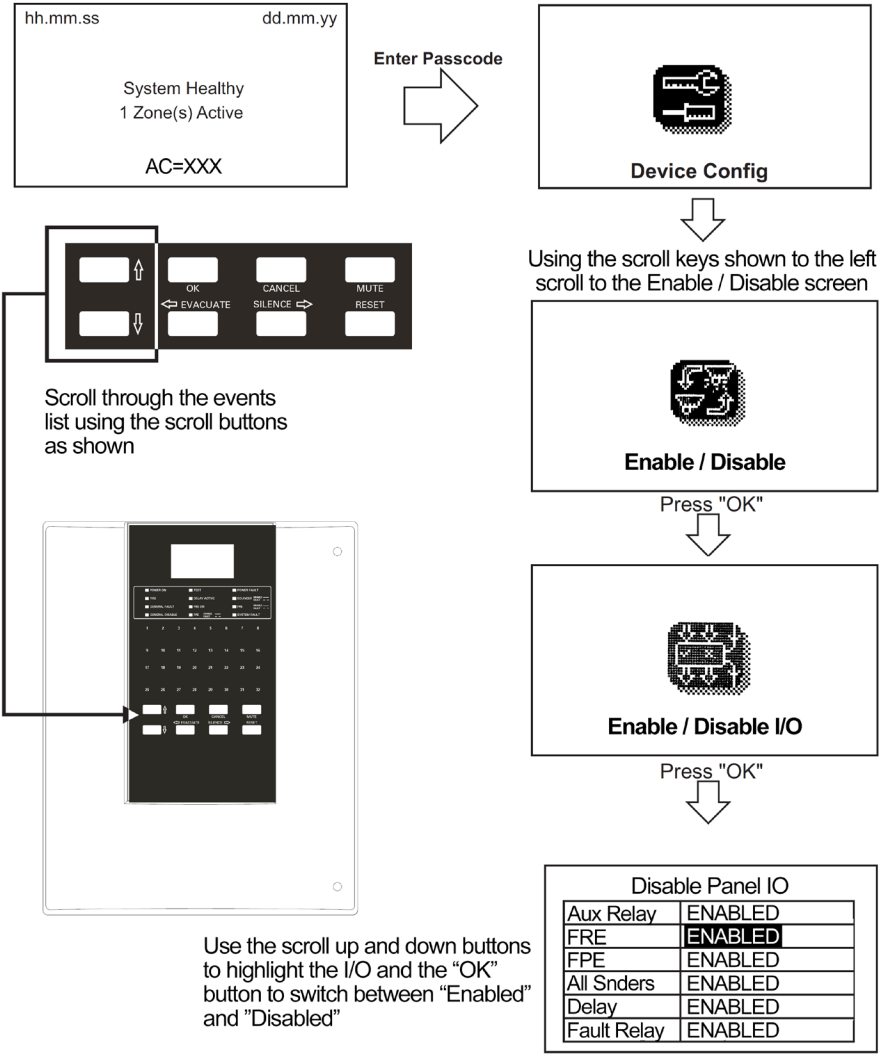


Figure 45. Device Config (Enable/Disable I/O) screen

Device Config (Check Autoconfig)

The Check Autoconfig screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

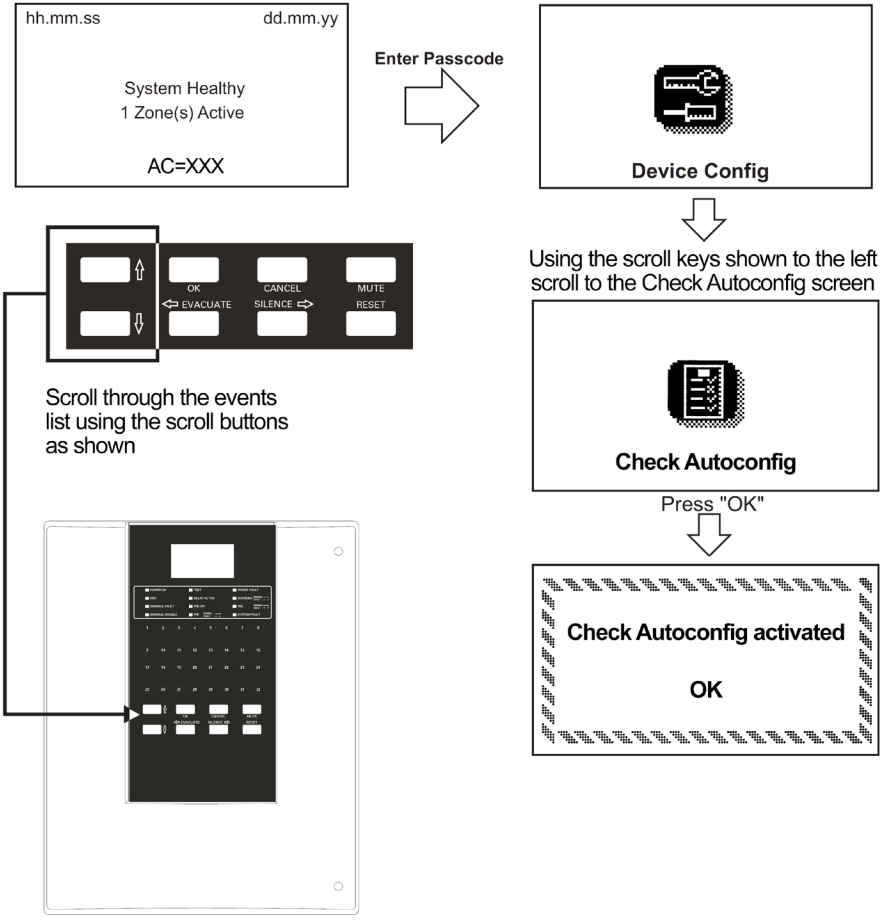


Figure 46. Device Config (Check Autoconfig) screen

Device Config (Change Device)

The Change Device screen is accessed as shown below. The screens are accessed from the healthy screen by first pressing any button. You will then be prompted to enter the passcode which will show the screen below by default.

Press OK and scroll through the list of events using the Up and Down arrow buttons.

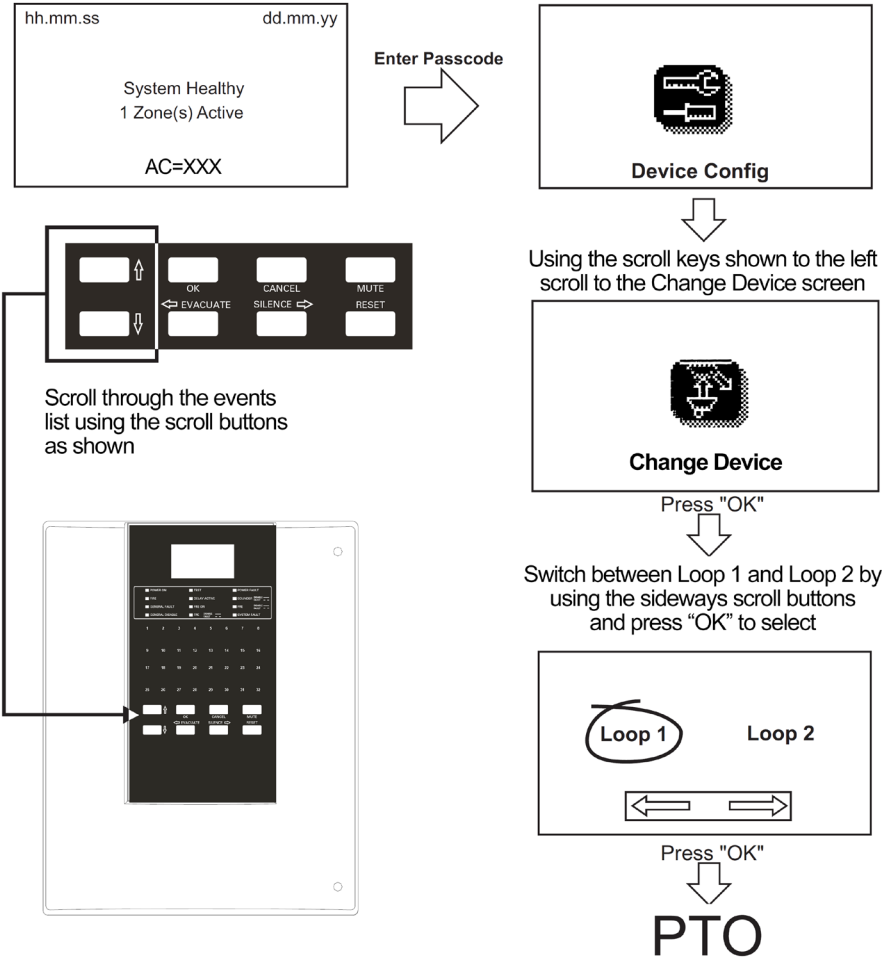


Figure 47. Device Config (Change Device) screen

Device Config (continued)

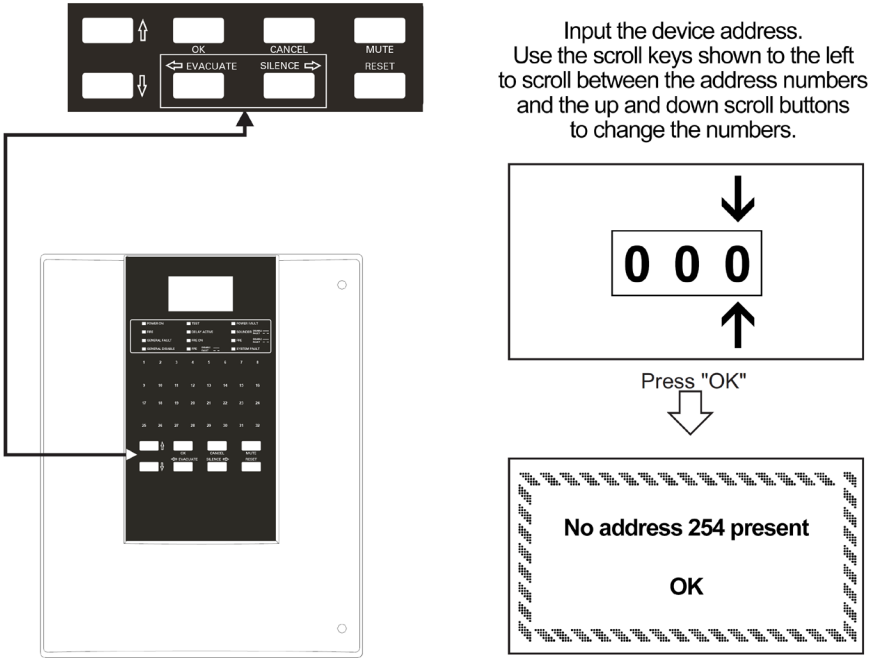


Figure 48. Device Config (Change Device) screen continued

Appendix

System Wiring

A typical wiring arrangement is shown

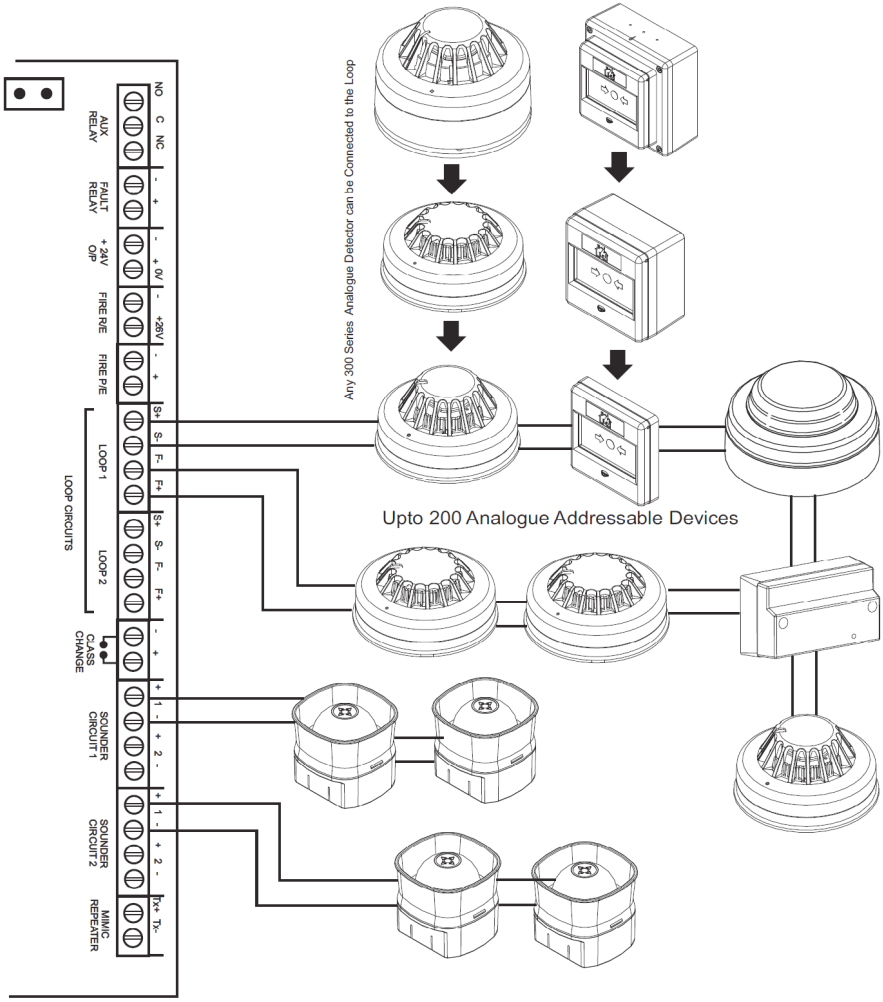


Figure 49. Typical System Wiring

Detector Base Wiring

Supply Voltage	18 - 30V DC
Cable Size	0.5 - 2.5mm²
Recommended cable types	FIRETUF, FP200 or MICC
Mounting Hole Centres	50 - 80mm

Wiring Hints

1. Each terminal is suitable for clamping up to 2 wires
2. Clamping of 2 wires of very different diameters under one screw is not recommended.
3. Suitable for mounting to mounting boxes with 50-80mm fixing centres.

General

If difficulty is experienced when mounting the sensor, this may be due to the following:

1. Wiring causing an obstruction - move or shorten wires.
2. Although the base is tolerant to uneven mounting surfaces, a very uneven surface may cause the base to deform when the mounting screws are tightened down - loosen screws to reduce this or slide base to a flat position.

⚠ WARNING

DO NOT USE HIGH VOLTAGE TESTERS WHEN SENSORS OR CONTROL PANEL ARE CONNECTED TO THE SYSTEM

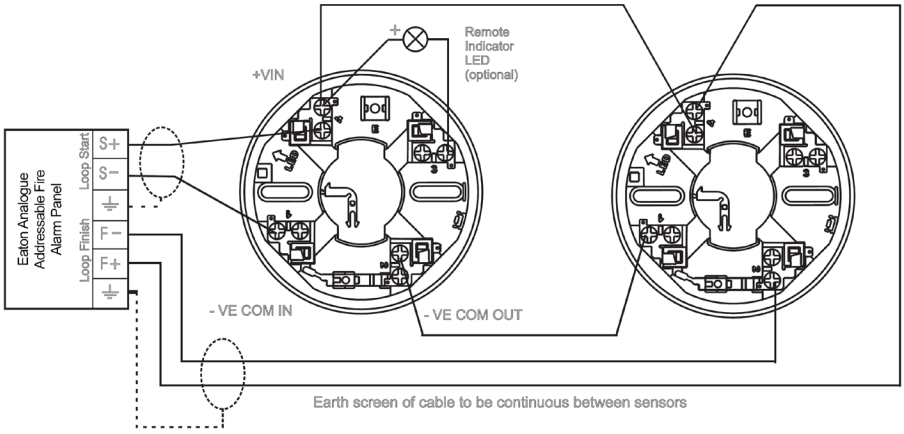


Figure 50. Wiring Diagram for Sensor Base

Addressable Call Point

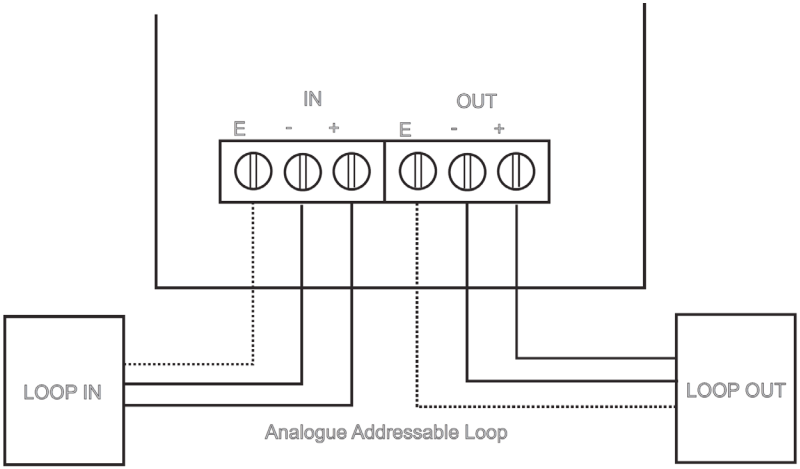


Figure 51. Call Point

Base sounder and sounder beacon base

Supply Voltage	17 ~ 32V DC
Cable Size/type	0.5 ~ 2.5mm FIRETUF, FP200 or MICC
Standby current	< 320 uA
Operating temperature	-10 to +55 degrees C (95%RH)
Sound output @ +/-3dB	Low volume: 84dB @ <4mA
	(set by panel) :
	Medium volume: 92dB @ <8mA
	High volume : 95dB @ <12mA
Tones (set by installler)	Continuous 910Hz
	Pulsed 910Hz / 0Hz pulse 1Hz
	Two tone 610 / 910Hz @ 1Hz cycle
	Slow whoop 500-1200Hz in 3.5 seconds/0.5secs gap

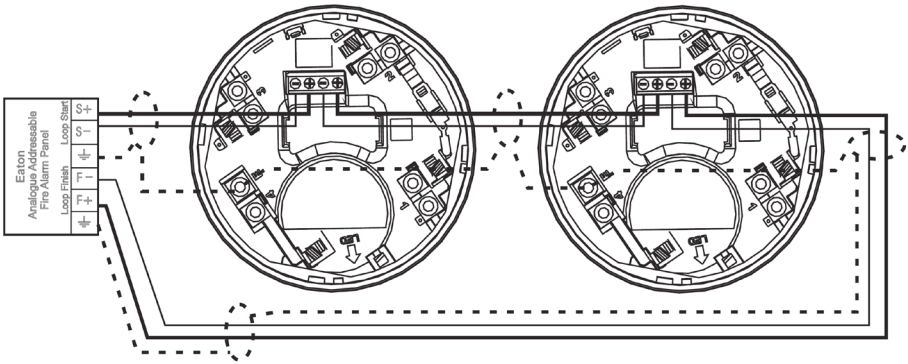


Figure 52. Base sounder and sounder beacon base wiring

Loop powered beacon

Connection Details: Earth screen of cable to be continuous between beacons.

⚠ WARNING

DO NOT USE HIGH VOLTAGE TESTERS IF ANY EQUIPMENT IS CONNECTED TO THE SYSTEM.

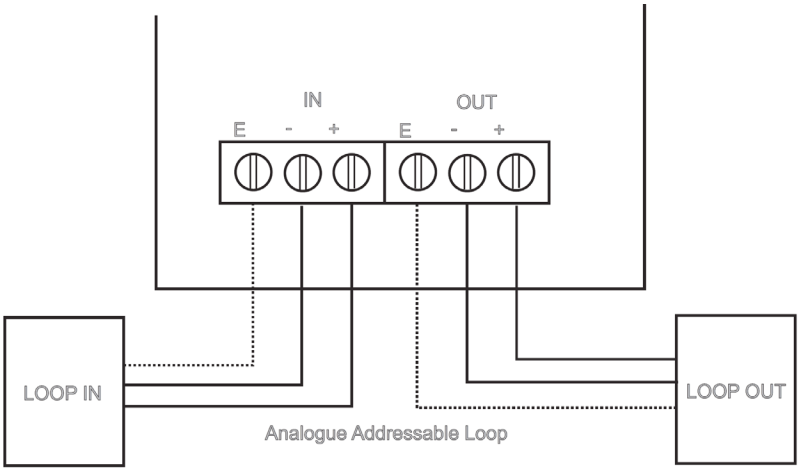


Figure 53. Loop powered beacon

Internal Wall Sounder

To install the device, fix to mounting surface using two suitable screws. The rear gasket fits underneath the base and the sounder gasket fits inside the base.

Connect the device as shown.

⚠ WARNING

DO NOT USE HIGH VOLTAGE TESTERS IF ANY EQUIPMENT IS CONNECTED TO THE SYSTEM. EARTH SCREEN MUST BE CONTINUOUS ALONG ENTIRE LENGTH OF LOOP.

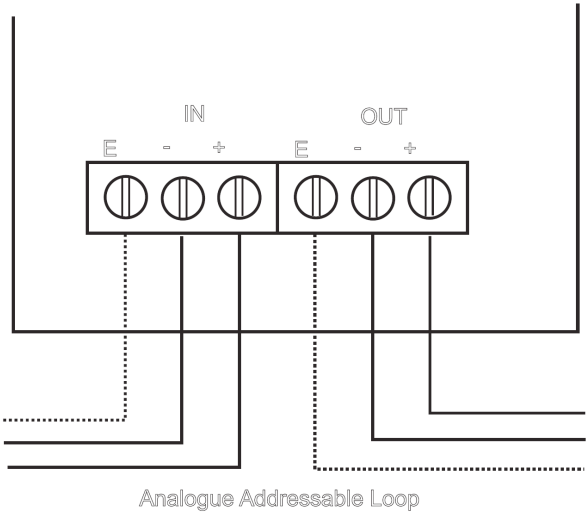


Figure 54. Internal Wall Sounder

Note: Care should be taken to ensure that the cable does not put stress on the circuit board

IP66 Wall Sounder Wiring

To install the device

1. Drill required holes for the cable gland fixing
2. Drill out the required fixing holes
3. Fix to mounting surface using two suitable screws

⚠ WARNING

DO NOT USE HIGH VOLTAGE TESTERS IF ANY EQUIPMENT IS CONNECTED TO THE SYSTEM. EARTH SCREEN MUST BE CONTINUOUS ALONG ENTIRE LENGTH OF LOOP.

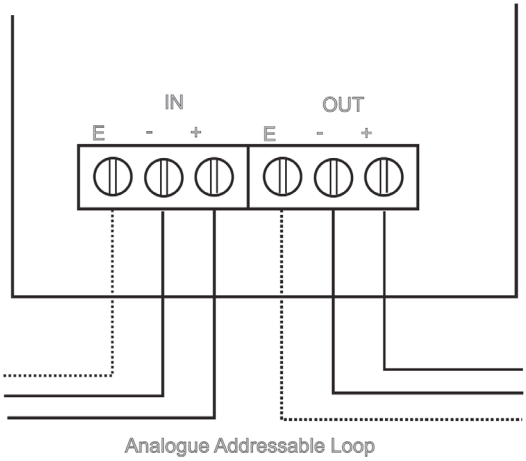


Figure 55. II Sounder Wiring

3 Way Input/Output unit

Install the device as follows.

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting back-box.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.

Note: No addressing of the interface is required. See control panel operation for details.

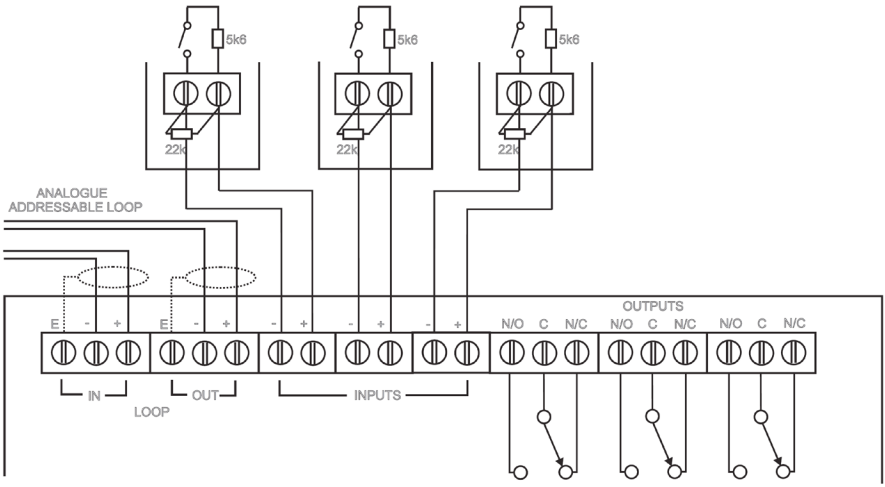


Figure 56. Wiring for 3 way Input/Output unit

Notes

1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistor must always be fitted, even if the inputs are unused.
3. Monitored inputs can detect open or short circuit faults.
4. Output relays are volt-free contacts and are not monitored.

Appendix

1 Channel Mains Rated I/O Wiring

To install the device

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting backbox.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according the diagram.

Note: No addressing of the interface is required. See control panel operation for details.

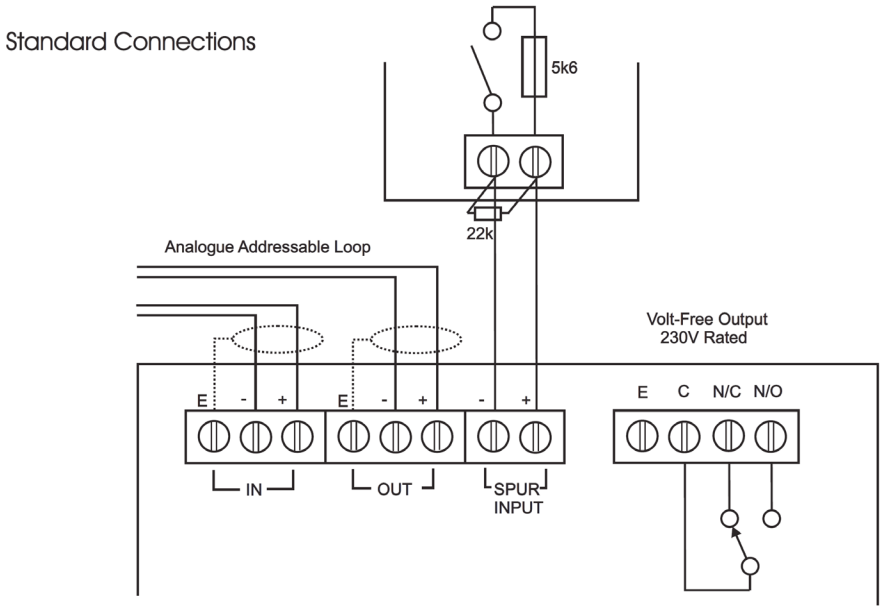


Figure 57. 1 Way Input Output Unit

Notes:

1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistor must always be fitted, even if the spur is unused.

Zone Monitor Unit Wiring

To install the device

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting backbox.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram.

Note: No addressing of the interface is required. See control panel operation for details.

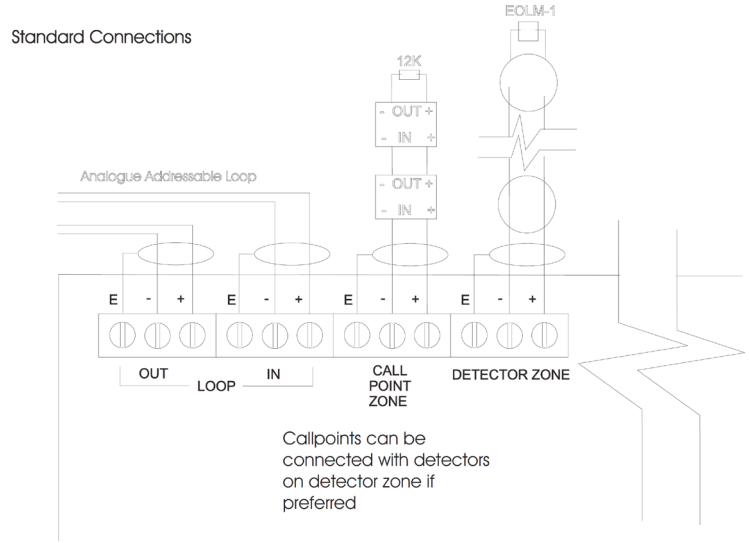


Figure 58. Zone Monitor Unit

Notes:

1. This unit can only be used with EFXN520 detector base and compatible detectors.
2. Only connect cable screen to its adjacent earth terminal.
3. The end of line resistor must always be fitted, even if the spur is unused.
4. Maximum spur length - See BS5839 Part1:2002 for Zone Coverage.
5. Maximum number of call points allowed is unlimited.
6. Detector zone end of line device is EOLM-1 (supplied).
7. Callpoint zone has end of line resistor.

Intrinsically Safe Zone Monitor Unit Wiring

To install the device

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting backbox.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram.
5. Recommended Cable Type: FIRETUF, FP200, MICC

Note: No addressing of the interface is required. See control panel operation for details. There are no serviceable parts so no maintenance procedures apply.

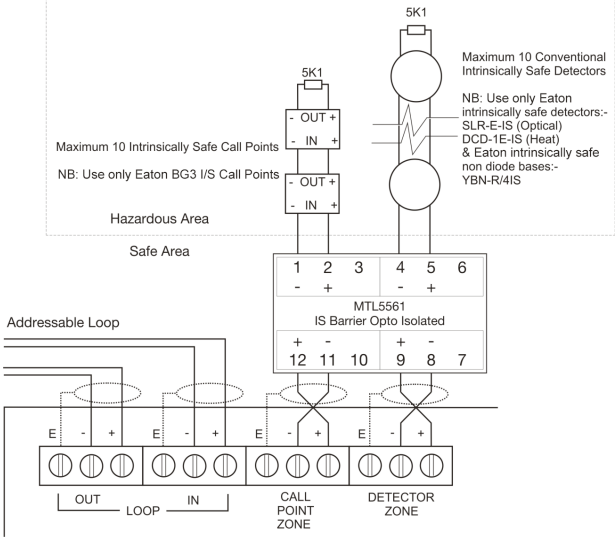


Figure 59. Standard connections

Notes:

1. This detection zone can only be used with intrinsically safe detectors SLR-E-IS (optical)/ DCD-1E-IS (heat) with the non-diode base YBN-R/4IS.
2. The call point zone can only be used with BG3 I/S call points.
3. Only connect cable screen to its adjacent earth terminal.
4. The end of line resistor must always be fitted, each if the spur is unused.
5. Maximum spur length - See BS5839 Pt1:2001 for Zone Coverage.

Shop Monitor Unit

To install the device

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting backbox.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram

Note: No addressing of the interface is required. See control panel operation for details.

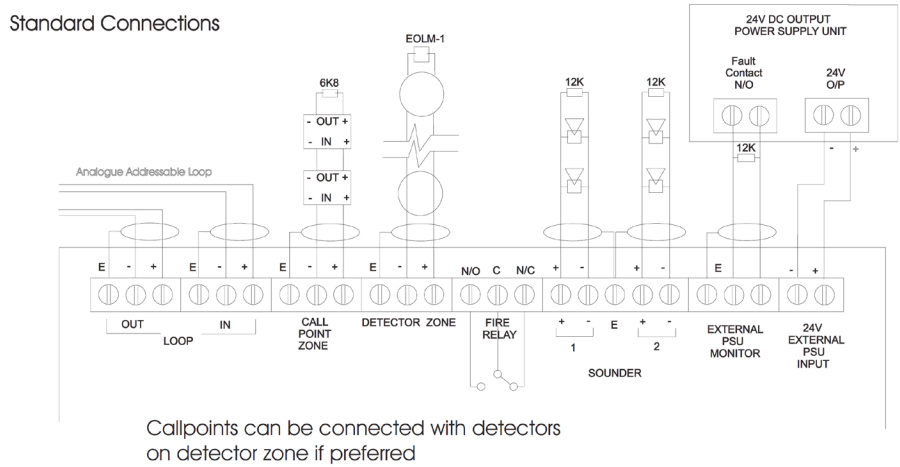


Figure 60. Shop Monitor Unit

Notes:

1. This unit can only be used with EFXN520 detector base and compatible detectors.
2. Only connect cable screen to its adjacent earth terminal.
3. The end of line resistor must always be fitted, even if the spur is unused.
4. Maximum spur length - See BS5839 Part1:2002 for Zone Coverage.
5. Maximum number of call points allowed is unlimited.
6. Detector zone end of line device is EOLM-1.
7. Callpoint zone has end of line resistor.

Spur Isolator

To install the device

1. Fit the unit in position.
2. Connect the unit according to the diagram below.

Notes:

1. A Spur Isolator must be used when making spurs from the analogue addressable panel loop. Without this unit, the self addressing features of the system will not function correctly.
2. No addressing of the interface is required. See control panel operation for details.

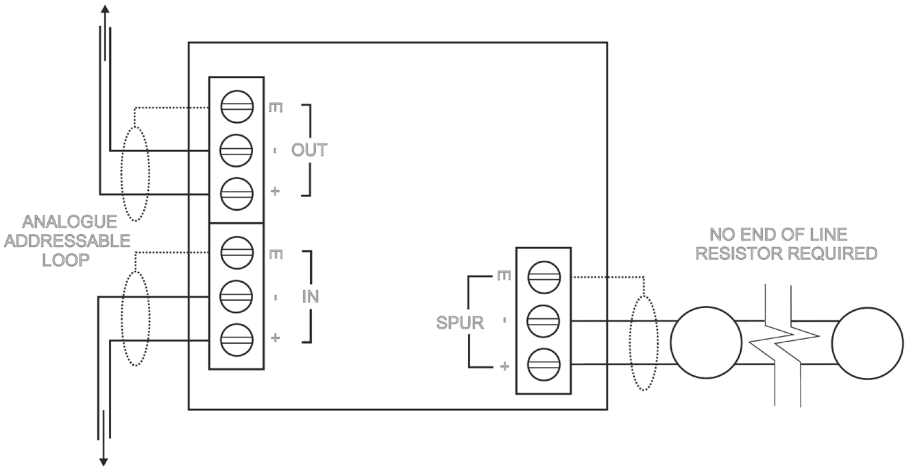


Figure 61. Spur Isolator

Notes:

1. Only connect cable screen to its adjacent earth terminal.
2. For maximum spur length / load see BS5839 Part1:2002.
3. This unit can only be used with Eaton addressable detector bases and compatible sensors.

4 Way Sounder Controller

To install the device

1. Remove the cover of the unit.
2. Fit the back-plate in position and pass the wires into it taking care not to damage the circuit board.
3. Connect the unit according to the diagram below.

Note: No addressing of the interface is required. See control panel operation for details. This unit requires a permanent 230V AC supply.

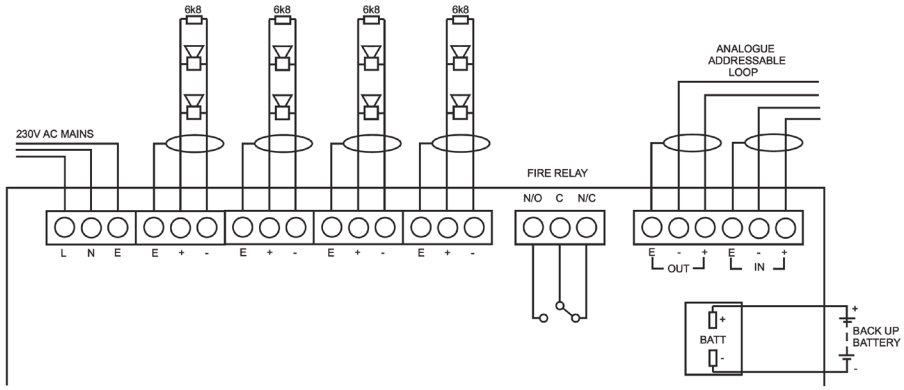


Figure 62. 4 Way Sounder Controller

Notes:

1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistors must always be fitted, even if the sounder circuits are unused

Micro Zone Monitor Wiring

To install the device

1. Fit the box in position using the mounting details below.
2. Connect the unit according to the diagram.
3. Recommended Cable Type: FIRETUF, FP200, MICC.

Note: No addressing of the interface is required. See control panel operation for details. There are no serviceable parts so no maintenance procedures apply.

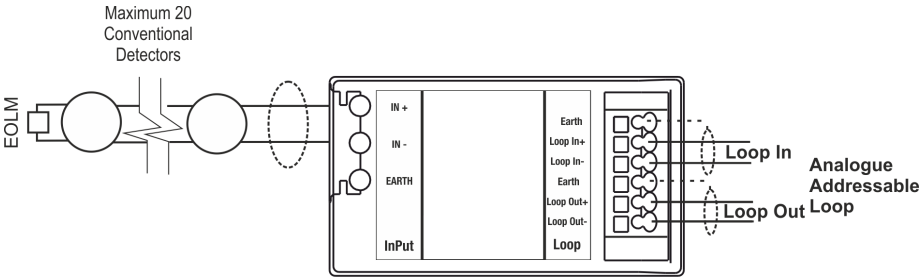


Figure 63. Standard connections

1. This unit can only be used with Eaton EFXN520 detector base and compatible detectors.
2. Only connect cable screen to its adjacent earth terminal.
3. The end of line resistor provided must always be fitted, even if the spur is unused.
4. Maximum spur length - See BS5839 Pt1:2001 for Zone Coverage.
5. Maximum number of call points allowed is unlimited.
6. Detector zone end of line device is EOLM-1 (supplied).

Micro Input Module Wiring

To install the device

1. Fit the box in position using the mounting details below.
2. Connect the unit according to the diagram.
3. Recommended Cable Type: FIRETUF, FP200, MICC.

Note: No addressing of the interface is required. See control panel operation for details. There are no serviceable parts so no maintenance procedures apply.

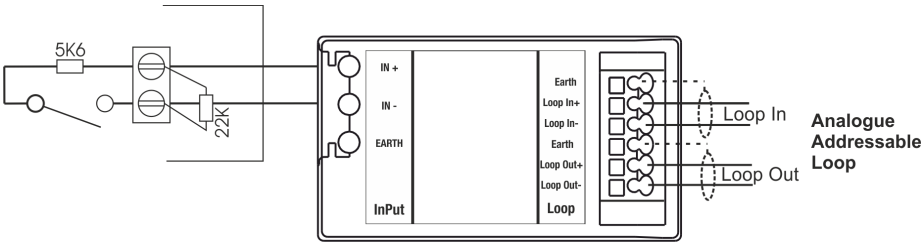


Figure 64. Standard connections

1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistor provided must always be fitted, even if the input is unused.
3. Monitored inputs can detect open or short circuit faults.

Battery Disposal Instructions

Although batteries contain lead and small amounts of antimony and arsenic, they are safe if handled according to the accompanying guide. The battery cells must not be dismantled as this involves several hazards, which are best handled under controlled conditions, using specialised equipment. No attempt should be made to repair any batteries; they should be treated as disposable when they have outlived their use.

Batteries must be disposed of in accordance with current waste disposal and pollution legislation and in particular; The Environment Protection Act 1990, Special Waste Regulation 1996. It is recommended that the following authorities are contacted before any attempt is made to dispose of batteries; Environment Agency Local office, Local Authority Environmental Health or Waste Handling department.

Appendix

09 2831 DoP0229	Eaton Electrical Systems Ltd Wheatley Hall Road Doncaster South Yorkshire DN2 4NB 09
EN 54-2 1997 & A1:2006 CF2000 Control and indicating equipment for fire detection and fire alarm systems for buildings EN 54-2 Clause	
Options Provided	
7.8	Output to fire alarm devices
7.9.1	Output to fire alarm routing equipment
7.10.1	Output to automatic fire protection equipment (type A)
7.11	Delays to outputs
7.12.3	Dependencies on more than one alarm signal-Type C
7.13	Alarm counter
8.9	Output to fault routing equipment
9.5	Disablement of each point
10	Test condition
Other technical data: see Doc. 25-16330 held by the manufacturer	

09 2831 DoP0229	Eaton Electrical Systems Ltd Wheatley Hall Road Doncaster South Yorkshire DN2 4NB 09
EN 54-4 1997 & A1:2002 A2:2006 CF2000 Power Supply equipment for fire detection and fire alarm systems for buildings EN 54-2 Clause	
Other technical data: see Doc. 25-16330 held by the manufacturer	

Notes

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Publication No. 25-16330-B
December 2019