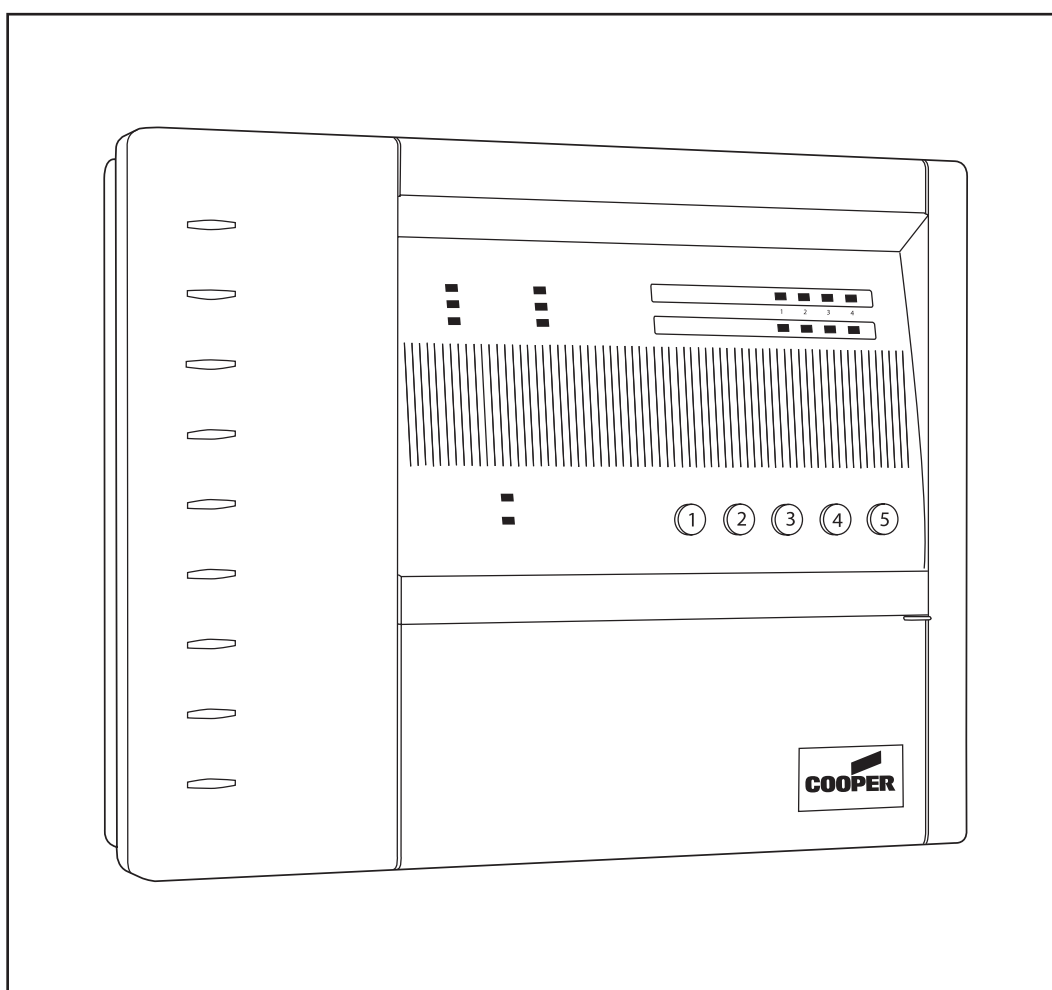


Installation and user manual for the FX range of fire panels

1, 2, 4 and 8 zone panels



Contents

Panel installation	3
Panel connections	3
Wiring connection drawings	4
Panel facilities	6
Installation check	8
Commissioning	
User information	
Maintenance	
Tables	
Sounder and Visual Indication	9
Technical Specification	9

General

Installation

Please read the following instructions before installing and wiring the fire alarm panel.

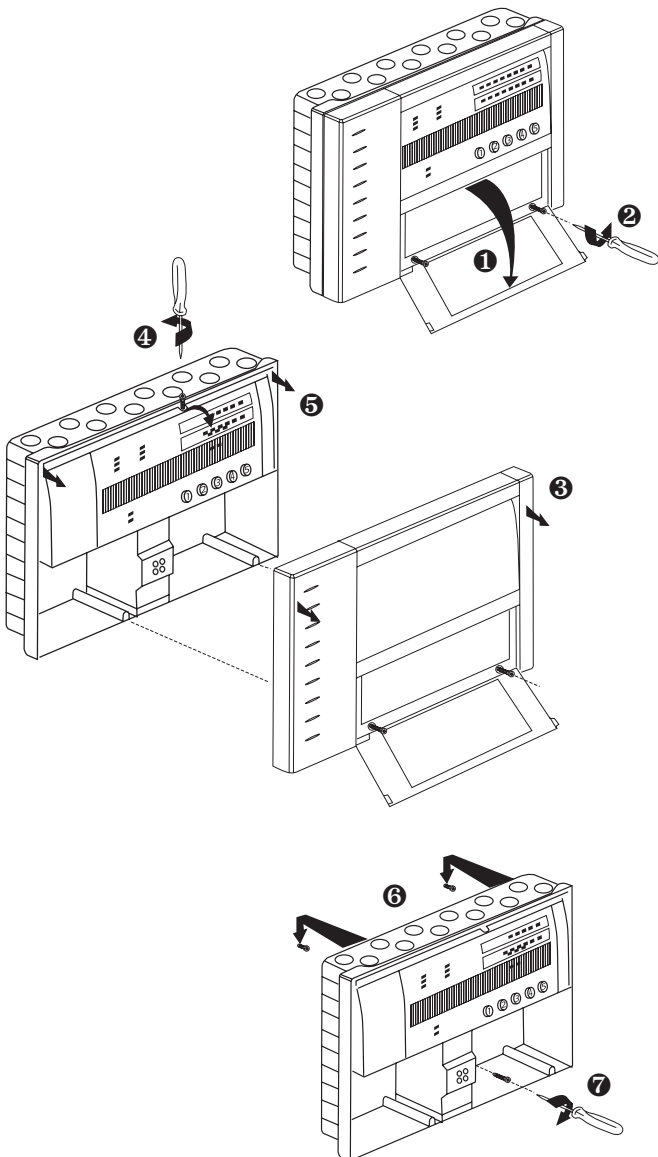
This range of panels are EN54 parts 2 and 4 certified and have been designed to comply with BS5839 part 1:2002 installations.

The panels have two optional features:-

FIRE ALARM DEVICES: (EN54 part 2 clause 7.8)

TEST CONDITION: (EN54 part 2 clause 10.0)

In common with all electrical equipment the panel should be installed in a clean, dry, well ventilated area, not in direct sun light and avoiding cold areas where possible. Note, temperatures in excess of 40°C will affect the panel operation. 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.



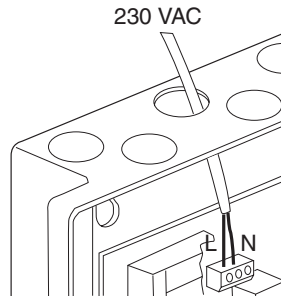
Mount the panel, using pre drilled screw positions, to the wall. This will prevent any possible brick dust contamination of the panel internal circuitry.

When using 20mm conduit entry direct to the top of the housing, use a coupler to ensure a wide distribution of pressure when tightening the coupling.

Wiring

Mains power supply

The mains supply should be exclusive to the fire alarm as detailed in BS5839 part 1. It is recommended that a double pole fused spur unit is used and marked "FIRE ALARM DO NOT SWITCH OFF", this should be for the sole use of the fire alarm. Within the panel, the mains supply should be isolated from the zone and alarm line wiring and should be connected to the terminal block marked MAINS.



Battery connection

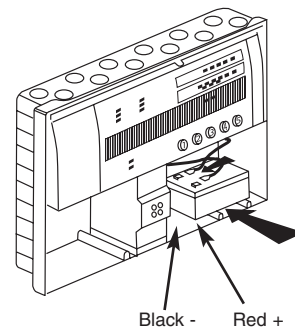
The 1, 2 & 4 zone panel requires a single battery (supplied):

1 zone panel: 1x12V 2.1Ah.

2 and 4 zone panels: 1x12v 3.2Ah

Connect the red battery wire to the red battery terminal (+).

Connect the black battery wire to the black battery terminal (-).

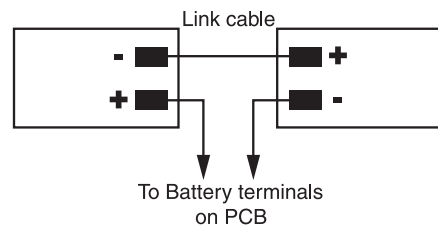


The 8 zone panel requires two batteries (supplied):

2x12v 3.2Ah

Connect the red battery wire to the red battery terminal (+) of battery one.

Connect the black battery wire to the black battery terminal (-) of battery two then connect the link cable as shown below.



Wiring

The following cable type and size are recommended:

Mains wiring:- 1.5mm², 2 core, fireproof cable

Zone wiring:- 1.5mm², 2 core, fireproof cable

Sounder wiring:- 1.5mm² to 2.5mm², 2 core, fireproof cable

WARNING

DO NOT USE A HIGH VOLTAGE TESTER WHEN WIRING IS CONNECTED TO ANY ELECTRONIC EQUIPMENT

Zone wiring

Each zone circuit is supplied with an End of Line Monitor unit (EOLM-1). All zone circuits must be terminated with an EOLM-1, connected at the end of the installed zone wiring, taking care to observe the correct polarity.



Do not fit any other component such as an end of line resistor to the zone circuits.

The EOLM-1 works in conjunction with a diode fitted in each detector base so that all call points continue to function should a detector head be removed.

This range of control panels can support up to 32 detectors (max per zone) and an unlimited number of call points per zone.

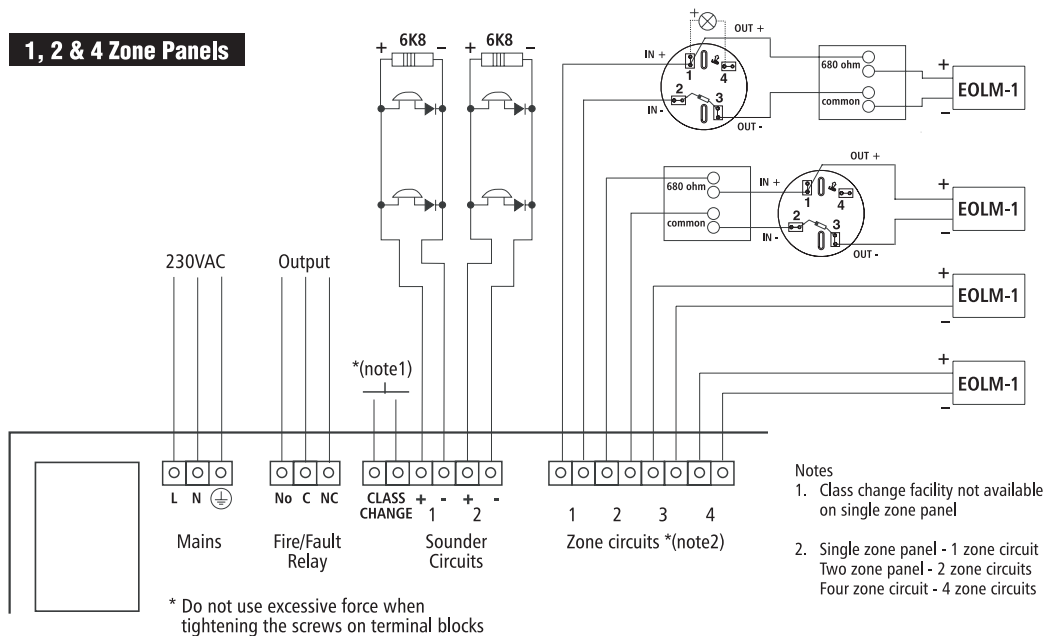
Sounder wiring

The standard 1, 2, and 4 zone fire alarm control panels have two separately protected, line monitored, sounder circuits for use with polarised and suppressed bells, sounders, strobes, relays etc. The 8 zone fire alarm control panel has four separately protected, line monitored, sounder circuits for use with polarised and suppressed bells, sounders, strobes, relays etc.

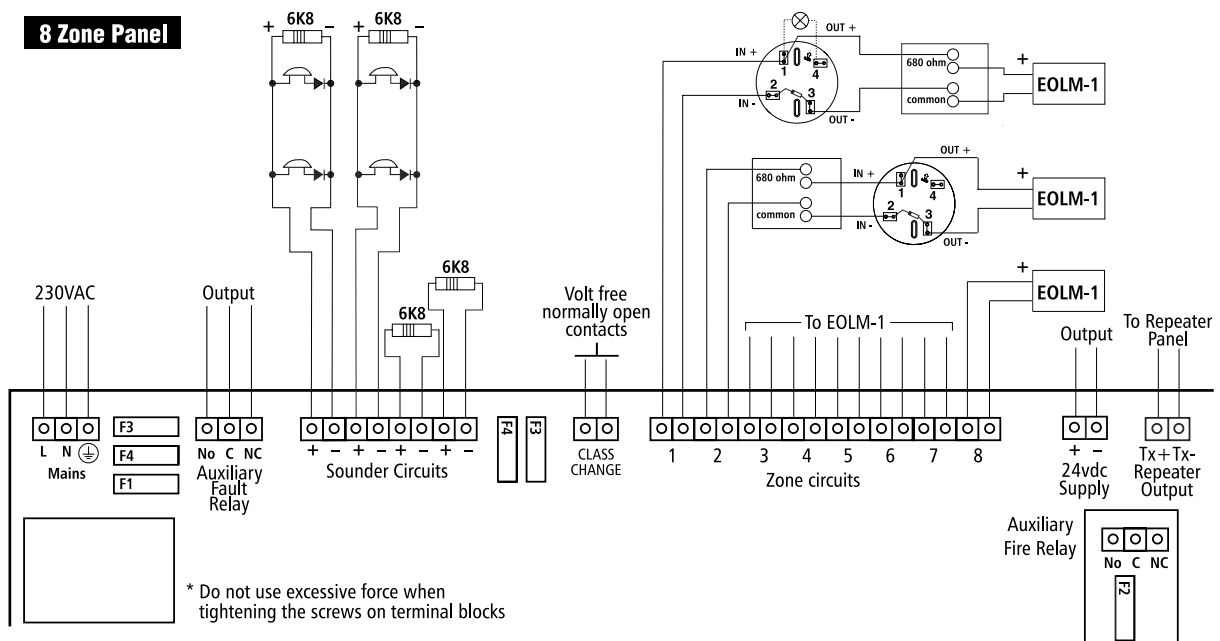
The wiring for each sounder circuit is to be a parallel circuit with the 6K8, end of line resistor (EOLR), fitted at the end of the installed sounder circuit wiring. No 'spurs' or 'tee's' permitted.

Wiring connection drawings

1, 2 & 4 Zone Panels



8 Zone Panel



Relay outputs

Fault/Fire relay (auxiliary circuit)

The 1, 2 & 4 zone panel each has one auxiliary relay fitted.

The auxiliary relay provides a fused volt free set of change over contacts. These contacts are not monitored.

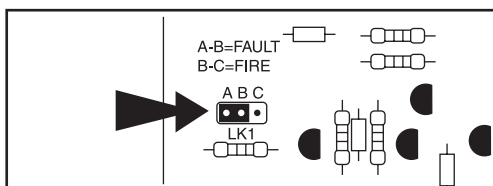
The relay has been designed to be 'fail safe', so that in the event of a total power loss the relay contacts will be active.

The auxiliary contacts are fused at 5Amps (F2) and rated at 30V DC.

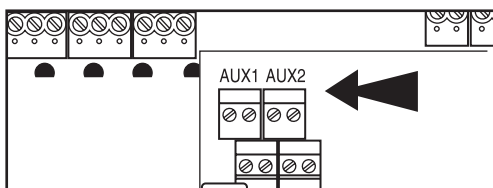
The wiring connections can be found on the power supply PCB and is labelled 'Auxiliary Circuit'

The auxiliary relay is factory configured as a fault relay but can be configured to operate as a general fault relay using LK1, found on the control PCB.

Fault LK1 position AB
Fire LK1 position BC



The 8 zone panel has two auxiliary relays fitted each providing a fused, volt free set of change over contacts. These contacts are not monitored.



Fault relay:

This relay has been designed to be 'fail safe', so that in the event of a total power loss the relay contacts will be active.

The auxiliary contacts are fused at 5Amps (F2) and rated at 30V DC.

The relay and its wiring connections can be found on the power supply PCB and is labelled 'Auxiliary Circuit'.

Auxiliary Fire relay:

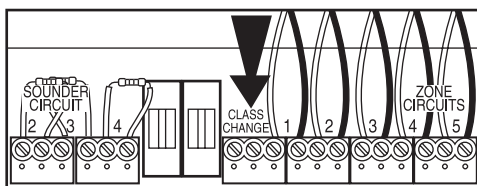
This relay operates as a general auxiliary fire relay and is situated on the relay PCB to the right hand side of the panel. The auxiliary contacts are fused at 5Amps (F2) and rated at 30V DC.

Class change

The sounder circuits can be operated by an external volt free contact (relay, Switch, timer etc.).

A short circuit at this terminal will activate the sounder circuit outputs (non-latching), removal of the short circuit will de-activate the sounder circuit output.

It should be noted that activation of the class change input will give no visual indication on the panel and will not operate the auxiliary relays.



Repeater panel

The 8 zone panel has a RS485 repeater output as standard, as a special order, the 2 and 4 zone panels can be factory configured, to provide this facility.

The repeater panel has been designed to provide a cost effective installation solution, requiring only two interconnecting wires from the master panel. Several repeater panels can be installed from the master panel by 'cascading' each repeater panel, again only two interconnecting wires are required between each repeater panel.

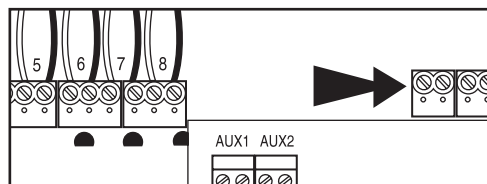
As each repeater has its own mains supply and standby battery the main panel standby time is not affected by the number of repeater panels installed.

The repeater panel is suitable for up to 8 zones and displays all the same indications as the main panel, but with the addition of an indicator test and mute buzzer facility.

Wiring

Connect the repeater, RS485 TX+ and Tx- terminals of the main panel, to the repeater panel positive and negative input terminals.

Main Panel Repeater Panel
TX+ to +ve input terminal
TX- to -ve input terminal



The minimum required cable size is 1mm² with a maximum length of 2km.

Installation Check

With the EOLM-1's and EOL resistors fitted in the main panel, connect the mains supply and battery. Check the green power on LED is lit and that no other indicators are lit.

Check the panel operates correctly by entering the access code (3112), then silence, then reset, check all indicators show momentarily.

Check each zone and alarm line for open and short circuit fault monitoring.

Zone circuits

Disconnect the mains and battery supply, wire in the zone circuits, one at a time, with the EOLM-1 transferred to the end of the zone (check polarity) but with no detectors fitted.

Power up the panel by connecting the mains supply and battery. Check that the last call point in each zone operates correctly by using the supplied call point test key. Reset the panel after each activation.

Fit all the detectors (a zone at a time) and check the panel shows healthy. If there is a problem (zone fault showing) check the faulty circuit for continuity, correct polarity and polarity of the base diodes.

(DO NOT USE A HIGH VOLTAGE INSULATION TESTER)

Sounder circuits

Disconnect the mains and battery supply. Wire in the sounder circuits, one at a time, transferring the end of line resistor to the end sounder/bell on each circuit.

Power up the panel as before and verify that no faults show. If there is a fault indication check the affected circuit for short circuit, continuity and polarity.

(DO NOT USE A HIGH VOLTAGE INSULATION TESTER)

Commissioning the system

Assuming that the installation instructions and installation checks have been carried out successfully the fire alarm system is ready for commissioning.

Each detector and call point should be tested in turn to ensure that it operates, indicates the correct zone fire LED and operates the alarm output correctly, ensuring all sounders/bells operate.

Walk test facility

A walk test function has been included in this range of panels to enable one person (electrical contractor or installer) to test the fire detection system without an assistant. This function is for the sole use of the electrical contractor or installer and not for normal operational use.

The walk test facility access code is located inside the fire detection control panel.

Once the walk test code has been correctly entered the 'test in progress' indicator will show and the buzzer will pulse, this sets a time window of 10 minutes.

If a detector or call point is triggered within this period the sounders will operate for a short time then the system will automatically reset ready for the next call point or detector activation.

If a detector or call point is not operated within the 10 minute period then the system will automatically reset and return to normal operation.

The walk test facility can be terminated at any time during test by pressing the 'reset' button.

User information

There are 2 access codes used by the control panel: -
access level 2 - client code (3112)
and
access level 3 - engineers code

These codes are displayed on the rear of the front panel.
The access level 2 code is also shown on the panel key fob.

Level 2 access permits the following functions:

- Silence alarm
- Evacuate
- Enable and disable zones
- Enable or disable sounders
- System reset

The access code (level 2 or 3) is enabled by pressing the five control panel front buttons in the correct sequence.

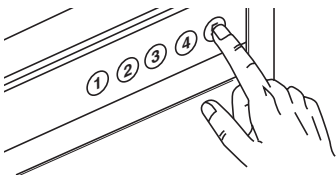
1 2 3 4 5

An audible signal indicates that the access code keyed in is correct.

Mute buzzer

Silences control panel's internal buzzer

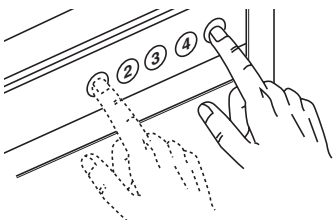
access code level 2 + 5



Silence alarm

Silences external sounders and mutes internal buzzer

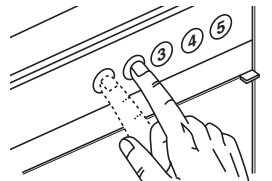
Access code level 2 + 1 + 5



Reset after fire alarm activation

Silences buzzer, resets the panel indicators, resets detectors and resets control relays

access code level 2 + 1 + 2



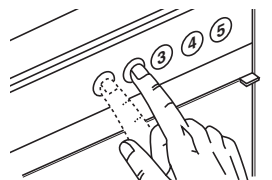
Ensure any smoke still in the activated detector is blown clear, as the control panel will activate back into alarm should any smoke remain.

Reset panel without a fire activation

(e.g. to reset a fault indication when fault latch facility set)

Silences buzzer, resets the panel indicators and resets faults relay

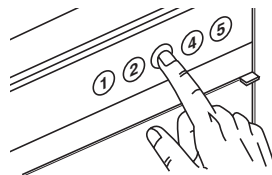
access code level 2 + 1 + 2



Evacuate

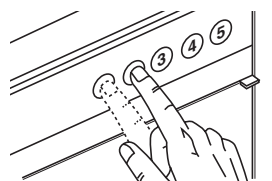
Operates the control panel's sounder circuits and fire relay(s)

access code level 2 + 3



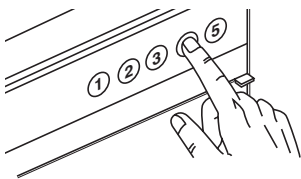
To silence the alarm during evacuate period

access code level 2 + 1 + 2



Disable zone

Isolates required detection zone from the system
access code level 2 + ④



The yellow LED of the zone 1 will light and the internal buzzer will pulse rapidly, push button ④ several times until both the required zone and disabled yellow LED's are lit.

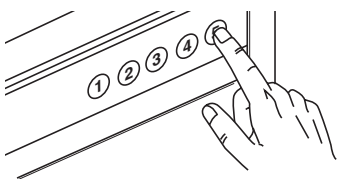
Push button ① to disable the indicated zone.

Repeat this procedure to disable further zones.

The internal buzzer will pulse at a slow rate and the disabled and zone disabled LED's will remain lit.

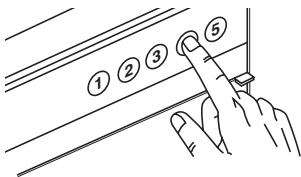
To silence the internal buzzer

access code level 2 + ⑤



Enable zone

access code level 2 + ④



Yellow led of the first zone is flashing. Push button ④ several times until the yellow led of the relevant zone is flashing.

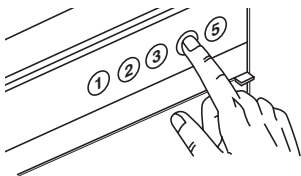
Push button ① to enable the relevant zone.

Repeat this procedure to enable further disabled zones.

Disable sounders

Isolates sounder circuits from the system

access code level 2 + ④



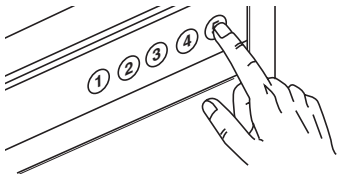
The yellow LED of the zone 1 will light and the internal buzzer will pulse rapidly, push button ④ several times until both the disabled and sounders disabled yellow LED's are lit.

Push button ① to confirm disable sounders.

The internal buzzer will pulse at a slow rate and the disabled and sounders disabled LED's will remain lit.

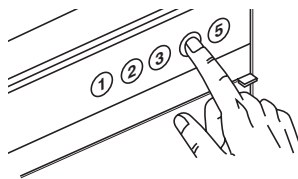
To silence the internal buzzer

access code level 2 + ⑤



Enable sounders

access code level 2 + ④



Internal buzzer will rapidly pulse. Push button ④ several times until sounder LED turns off.

Push button ① to confirm enable sounders

Self check detectors

Detector LED function (applies to self check detectors only)

Self check detectors incorporate self check intelligence enabling them to monitor their own status and to generate a fault signal at the panel in the event of a malfunction.

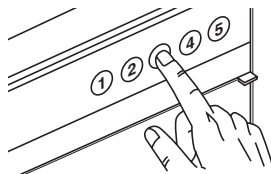
Should a detector develop a fault, the zone to which the detector is connected will indicate a zone fault and the status LED on the faulty detector will illuminate amber.

Should the detector fail completely, it is possible to instruct the panel to illuminate the LED's of the healthy indicators instead.

To activate this function, **enter the ENGINEERING code 3421 at the control panel then PRESS 3.....**

To activate this function,

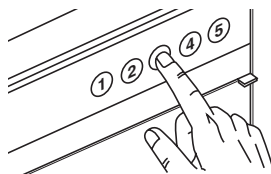
access code level 3 (engineer's code) + ③



To cancel this mode, **ENTER THE ENGINEERING CODE 3421 AT THE CONTROL PANEL AND THEN PRESS 3.....**

To cancel this mode,

access code level 3 (engineer's code) + ③



The LED control facility can also be used to diagnose faults in the external zone wiring, should a zone open circuit occur, activate the LED test mode as described above, the LED's of all detectors which still have a healthy connection to the panel will flash, greatly simplifying the location of the break.

Follow the instructions above to cancel LED indicator mode.

Maintenance

General

It is vital that the fire alarm system is checked for correct operation as per the requirements of BS5839.

Daily inspection (by user)

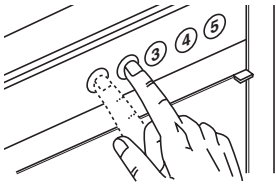
The panel should be visually inspected daily to ensure that the green 'power on' indicator is lit and that no fault indication is showing. Notify any fault indication to your maintenance company.

Weekly Test (by user)

Visually inspect panel as per daily inspection.

Test panel indicators

access code level 2 + ❶ + ❷

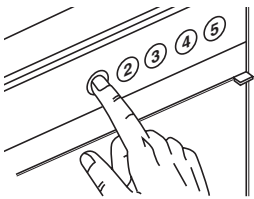


All indicators will light and panel internal buzzer will sound

Weekly Call Point Test (by user)

Enables call point test with automatic system reset

access code level 2 + ❶



The test in progress LED will light, the panel is now in a 'one-shot' auto reset mode. The call point can now be activated using the test key, the sounders will operate for a short period (3 seconds) after which the panel will automatically reset and return to normal operation. If a call point or detector is not operated within a short period the panel reverts to normal operation and the test is abandoned.

It is advised that different call point is tested each week to ensure that all call points are tested in rotation.

Log test results in log book.

Inspection and servicing (by service provider)

Quarterly Test

Check log book entries since last visit and verify that remedial action has been taken (if required).

Visually inspect panel as per daily inspection.

Carry out weekly test.

Visually inspect battery and battery connections.

Carry out battery load test by disconnecting the mains supply and check the battery is capable of supplying the alarm sounder load by activating a call point.

Log test results in log book.

Six monthly Test

As per quarterly test

Visual inspection of site to check for compliance of system to recommendations of local standard.

Six monthly Test (cont.)

All controls and indicators of control panel checked for correct operation.

All external circuits should be tested for correct fault monitoring

Log test results in log book.

Annual Test

As per six monthly test

Also all call points on the system should be tested and the automatic fire detectors should be visually inspected to ensure they have not been damaged or painted over. The automatic detectors should then be test operated.

Log test results in log book.

Every 5 years

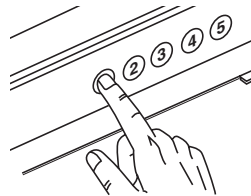
Replace sealed lead acid battery every 5 years (recommended).

Engineers code facilities

The engineering access code label can be found in the panel back box (internal).

One man walk test facility

access code level 3 + ❶



The 'test in progress' indicator will light and the panel internal buzzer will pulse, this sets a time window of 10 minutes.

If a detector or call point is triggered within this period the sounders will operate for a short time then the system will automatically reset ready for the next call point or detector activation.

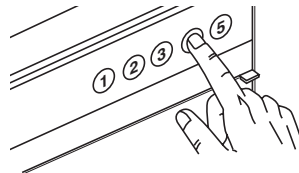
If a detector or call point is not operated within the 10 minute period then the system will automatically reset and return to normal operation.

The walk test facility can be terminated at any time during test by pressing the 'reset' button ❷.

Latch on fault facility (option on 2, 4 and 8 zone panels only)

All systems faults will latch on panel

access code level 3 + ❶




Test in progress LED will light. Panel will now 'latch until reset' on all faults.

The latch on fault facility can be terminated at any time by pressing the 'reset' button.

Panel fire/fault indicators

Indication → Situation ↓	Fire	General fault	Disable	Power On	Charger fault	System fault	Disable/Fault zone	Disable/Fault counder cct	Test	Buzzer
Normal condition				●						-----
Zone wiring open/short		●		●			☀			-----
Zone disabled			●	●			●			-----
Sounder cct. disabled			●	●				●		-----
Sounder and zone cct. disabled			●	●			●	●		-----
Power supply fault		●		●	☀					-----
Sounder circuit open/short		●		●				☀		-----
Panel in test				●					●	-----
System fault						●				-----
Panel button pressed				●						-----
Battery open circuit/reverse polarity		●		●	☀					-----
Battery high/low voltage		●		●	☀					-----
Fire	●			●						-----
Evacuation	●			●						-----

 LED flashing ----- Internal buzzer intermittent
 LED illuminated ----- Internal buzzer steady

Specification

Panel type	1 Zone	2 Zone	4 Zone	8 Zone
Detection zones	1	2	4	8
Detectors per zone	32			
Alarm lines	2			4
Max. alarm line load	300mA total (shared)		800mA total (shared)	500mA per alarm line 2A total
Fire/Fault relay	Yes			
Aux. DC output	No	Special order		24v DC Fused 30mA
Mains input voltage	230v AC - 10% + 15%			
System operating voltage	24v DC			
Battery	1 x 12v/2.1Ah	1 x 12v/3.2Ah		2 x 12v/3.2Ah
Recharge period	24 hours			
Repeater output	No	Special order		Yes
Environmental rating	IP30. -5°C to 40°C Humidity 75% max (NC)			
Dimensions	260(w) x 212(h) x 72(d)	332(w) x 270(h) x 90(d)		

