AUTOMATIC EXTINGUISHER CONTROL PANEL

User & Installation Manual

IMPORTANT

This manual should be left with the panel after installation.

We reserve the right to change product specifications without prior notice.

Product Manual Version: 3.1

INDEX

1. Introduction

The automatic extinguisher control panel is designed in accordance with European standards EN54-2 and EN54-4 Fire Detection and Fire Alarm systems - Control and Indicating Equipment and EN12094-1 Fixed firefighting systems - Components for gas extinguishing systems - Part 1: Requirements and test methods for electrical automatic control and delay devices.
The control equipment is a combined fire alarm control panel and extinguish ing system and has three detection zones, any or all of which are capable of contributing to the extinguishant release decision.
Control panels have an integral, mains powered battery charger and power supply designed in accordance with the requirements of EN54-4.

In addition to the requirements of EN54-2 the control panel has the following facilities:

Test condition to allow the automatic resetting of zones in alarm for testing purposes. EN54-2 Section 10 option with requirements
Delay of the actioning of fire alarm devices (sounders) so that an alarm may be verified before a premises is evacuated. EN54-2 Section 7.11 option with requirements.
Fire alarm devices to enable an audible warning to be sounded throughout premises upon the detection of a fire condition or the operation of a manual call point. EN54-2 Section 7.8 option with requirements

In addition to the requirements of EN54-2, all control panels have voltage free relay contacts for fire and local fire which operate upon a fire condition. These are to be used for local control and signaling.

In addition to the requirements of EN12094-1 the control panel has the following facilities:
Delay of extinguishing signal of up to 60 seconds. EN12094-1 Section 4.17 option with requirements.

Signal representing the flow of extinguishing agent to indicate the released condition. EN12094-1 Section 4.18 option with requirements.

Monitoring of the status of components by way of a low pressure switch input. EN12094-1 Section 4.19 option with requirements.

Emergency hold device to enable the extinguishant delay time to be extended. EN12094-1 Section 4.20 option with requirements.

Control of flooding time to deactivate the releasing output after a set period of time. EN12094-1 Section 4.21 option with requirements.

.

Manual only mode to disable the release of extinguishant via automatic detection devices. EN12094-1 Section 4.23 option with requirements.

Triggering of equipment outside the system by way of first and second stage contacts, extract fan output etc. EN12094-1 Section 4.26 option with requirements

Activation of alarm devices with different signals to indicate pre-discharge and released warnings using different sounds. EN12094-1 Section 4.30 option with requirements.

2. Safety and mounting

2.1 Safety

Suppliers of articles for use at work are required under section 6 of the Health and Safety at Work act 1974 to ensure as reasonably as is practical that the article will be safe and without risk to health when properly used.
An article is not regarded as properly used if it is used 'without regard to any relevant information or advice' relating to its use made available by the supplier.
This product should be installed, commissioned and maintained by trained service personnel in accordance with the following:

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

According to the provisions of the Act you are therefore requested to take such steps as are necessary to ensure that you make any appropriate information about this product available to anyone concerned with its use.
This equipment is designed to operate from 230V/50Hz mains supplies and is of class 1 construction. As such it **must** be connected to a protective earthing conductor in the fixed wiring of the installation and a readily accessible double pole disconnect device meeting the requirements of EN60950/IEC950 which disconnects live and neutral simultaneously shall be incorporated in the fixed wiring.
Switch disconnect devices such as MK Sentry 63A or similar are suitable for this.
Failure to ensure that all conductive accessible parts of this equipment are adequately bonded to the protective earth will render the equipment unsafe.
This control panel is environmental class A and is designed for indoor use only at temperatures between -50℃(+/- 3) and +400℃ (+/- 2) and with a maximum relative humidity of 95%.
The IP rating for the enclosure is IP30.
Operation outside of these limits may render the equipment unsafe.

2.2 Mounting

The control panel should be mounted on a dry, flat surface, at eye height to the display and in a level position such that the enclosure is not distorted.
Screws or bolts of a minimum of 5mm diameter must be used to mount the enclosure in all three mounting positions.
It should be positioned in an accessible place as agreed with the end user.

Suitable fixings should be used at all fixing points such that the control panel is securely mounted and is not liable to move once fixed.
The control panel should not be mounted in another enclosure or near sources of excessive heat. Cables should be connected using suitable cable glands fitted to the knockouts provided. If additional cable entry points are required, all swarf and debris caused by drilling of additional cable entries must be cleared before power is applied to the panel.

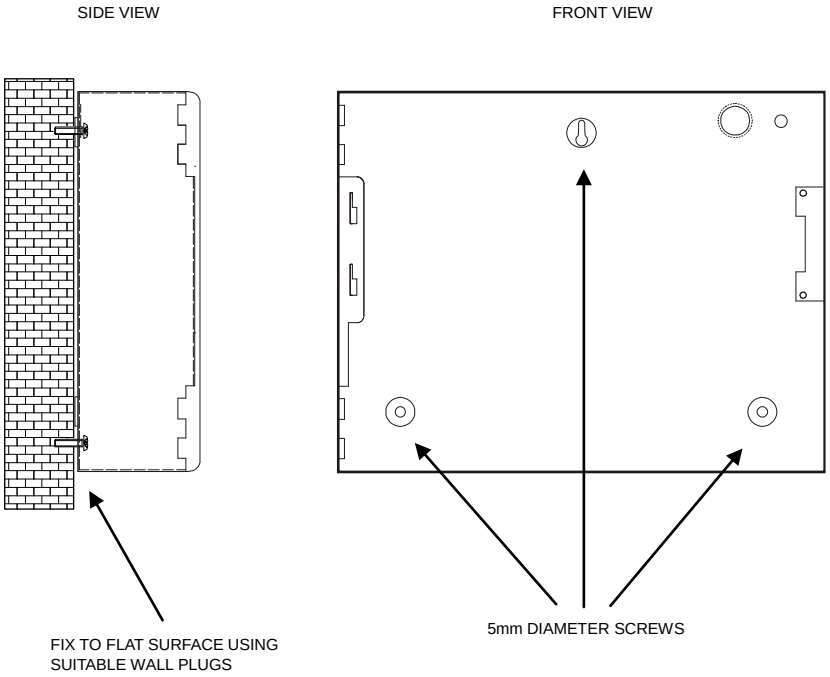


Figure 1. Mounting

3. Technical specification

Table 1 - Electrical specifications

ITEM	ELECTRICAL RATING	COMMENT
Mains supply	90 to 270VAC, 50Hz/60Hz(100 Watts maximum)	
Mains supply fuse	3 Amp (F3A L250V)	Replace only with similar type
Power supply rating	3 Amps total including battery charge 28V +/- 2V	
Maximum ripple current	200 millivolts	
Battery type	Two 12 Volt sealed lead acid in series.	7Ah maximum
Battery charge voltage	27.6VDC nominal	
Battery charge current	0.7A maximum	
Battery fuse	20mm, 3.15 glass	
Current draw in mains fail condition	0.095 Amps	With buzzer sounding
Current draw in second stage alarm	0.235A	Two zones in fire(470 ohm in circuit)
Current draw in post discharge condition	0.310A	solenoid outputs active
Maximum current draw from batteries	3Amps	With main power disconnected
R0V output	Fused at 500Ma with electronic fuse	
Sounder outputs	21 to 28V DC Fused at 500mA with electronic fuse	1.6Amp total load over all circuits
Fault relay contact rating	5 to 30VDC 1A Amp maximum for each	Volt free changeover contact
Fire relay contact rating	5 to 30VDC 1A Amp maximum for each	Volt free changeover contact
Local fire relay contact rating	5 to 30VDC 1A Amp maximum for each	Volt free changeover contact
First stage contact rating	5 to 30VDC 1A Amp maximum for each	Volt free changeover contact
Second stage contact rating	5 to 30VDC 1A Amp maximum for each	Volt free changeover contact
Extract contact rating	5 to 30VDC 1A Amp maximum for each	Volt free changeover contact
Zone quiescent current	0mA minimum, 2mA maximum	
Terminal capacity	0.5mm^2 to 2.5mm^2 solid or stranded wire	
Number of detectors per zone	Dependent on type	
Number of sounders per circuit	Dependent on type and current consumption	
Detection circuit end of line	6K8±5% 1/2 Watt resistor	
Monitored input end of line	6K8±5% 1/2 Watt resistor	
Sounder circuit end of line	10K±5% 1/2 Watt resistor	
Extinguishant output end of line	1N4004 Diode	
No. of detection circuits	Four 21 to 28V DC	
No. of sounder circuits	Three 21 to 28V DC	2X first stage, 1 X second stage
Extinguishant release output	21V to 28V DC. Maximum load 1 Amp	
Extinguishant release delay	Adjustable 0 to 75 seconds	5 second steps
SIL, AL, FLT, RST inputs	Switched –ve, min resistance 0 ohms, max 470 ohms	
Zone normal threshold (Allowable EOL)	10K ohms to 2K ohms	Use 6K8 end of line resistor
Detector alarm threshold	1K ohms to 390 ohms	
Call point alarm threshold	370 ohms to 150 ohms	
Short circuit threshold	130 ohms to 0 ohms	
Head removal condition	15.5 to 17.5 volts+/- 5%	
Cabling	FP200 or equivalent	Metal cable glands must be used.
Monitored inputs normal threshold (Allowable EOL)	10K ohms to 2K ohms	
Monitored inputs alarm threshold	2K ohms to 150 ohms+/-5%	
Monitored inputs Short circuit threshold	140 ohms to 0 ohms+/-5%	
Status unit/Ancillary board connection	Two wire RS485 connection with electronic fuse.	Max. of 16 units-RS485 data cable
Status unit power output	21 to 28V DC, Fused at 500mA with electronic fuse.	300 milliamp maximum load

4. Control panel fascia

In addition to the mandatory controls and indications required by the EN54-2 and EN12094-1 standards, two, seven segment LED displays and Reset, Test, Open/Close Extract Fan, Silence Alarm/Fault and Silence Sound Alarm buttons are provided to allow easy operation to the control panel, and Auto & Manual and Manual Only lock switch are provided to allow operated by authorized operator.

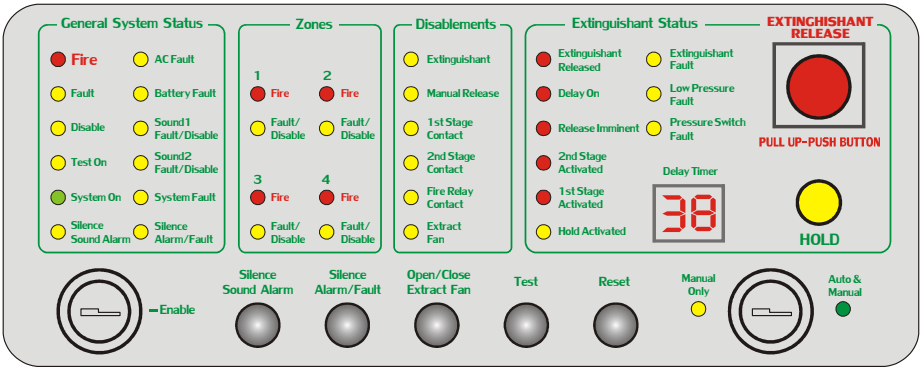


Figure 2. Front panel fascia

The fascia is divided into two sections. A standard EN54-2 control and indicating equipment section with four zones and an EN12094-1 extinguishant system section with extinguishant status and disablements separated for clarity.

The pushbutton controls facilities are common for both sections.

4.1 Removing the fascia

Open the control panel lid using the lock key.

Before the fascia can be removed it will be necessary to disconnect the power connector terminal block on the left hand side of the PCB. This is fitted on pins and can be pulled towards you to remove it. Do not remove the wires from the terminals.

The fascia of the control panel is held in place by two screws. Undo the two screws and lift the fascia gently away from the box towards you.

With the fascia removed there is much more room inside the panel for making off and dressing cables.

When cabling work is complete the fascia can be re-fitted with the two countersunk screws and the terminal block plugged back onto the pins on the board.

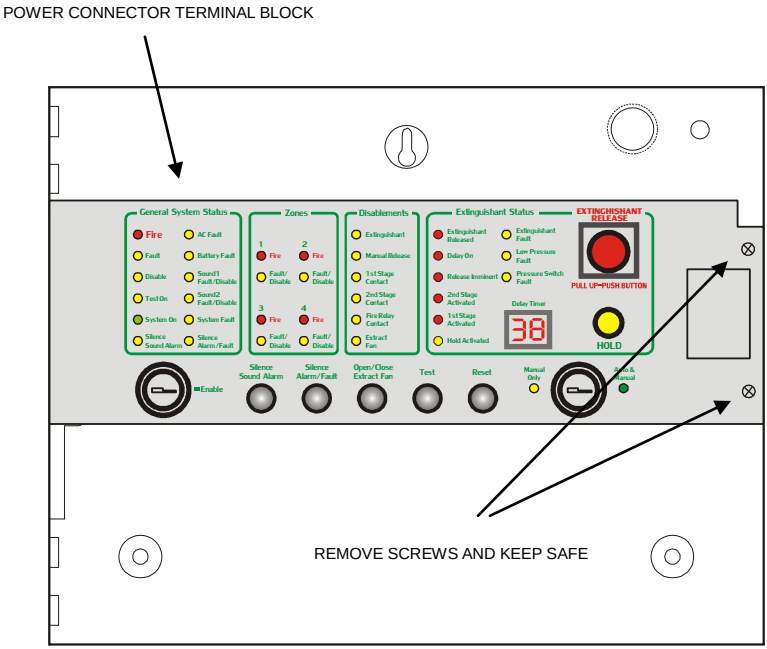


Figure 3. Removing the fascia

5. Overview of wiring

5.1 Connecting to the circuit board

All connections for field wiring are to a single row of terminals along the top of the circuit board. Shielded fire alarm cable such as FP200 and metal cable glands must be used for all connections to the panel. The resistance of any core of any cable must not exceed 25 ohms. The shield of the cable must be bonded securely to the enclosure via the metal gland.

Wiring should enter the enclosure at the top or back of the panel using the knockouts provided and be formed tidily to the appropriate terminals. Terminals are capable of accepting wires of up to 2.5mm^2.

Wiring must not go across the front of the circuit board. If cable entries need to be in positions other than at the knockouts provided, wiring must be fed behind and well away from the surface of the circuit board.

The space at the bottom of the enclosure is largely occupied by the standby batteries so this must be borne in mind when considering cable entries.

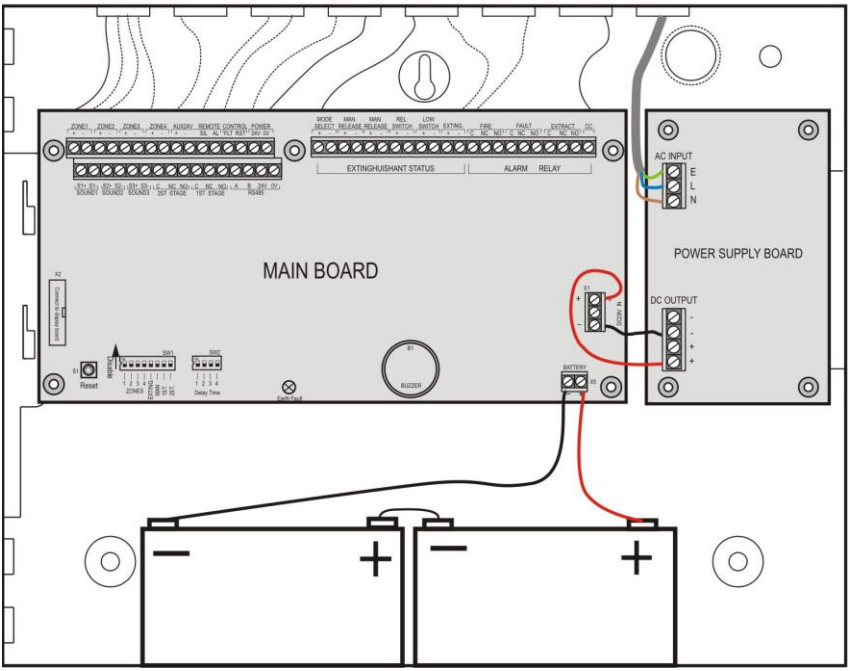
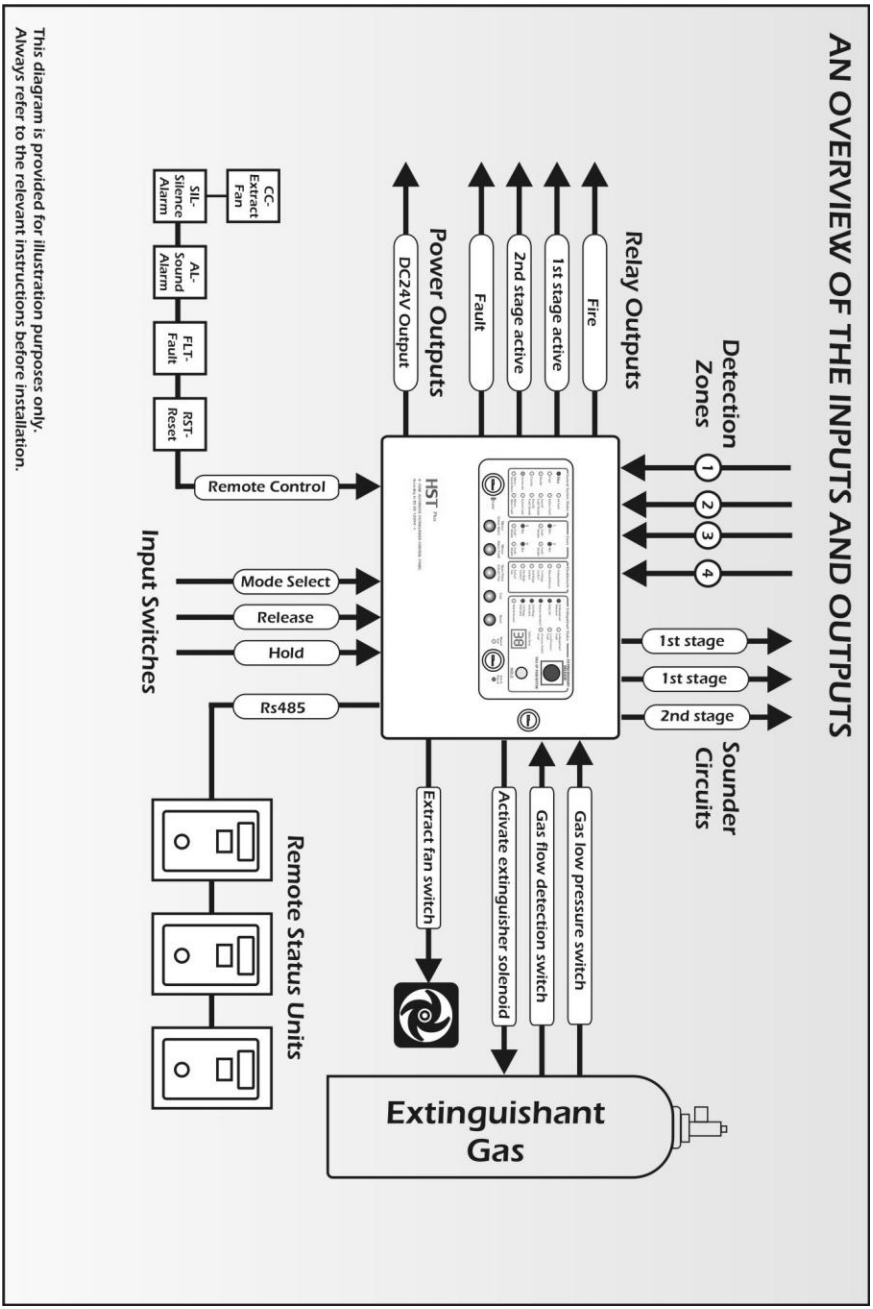
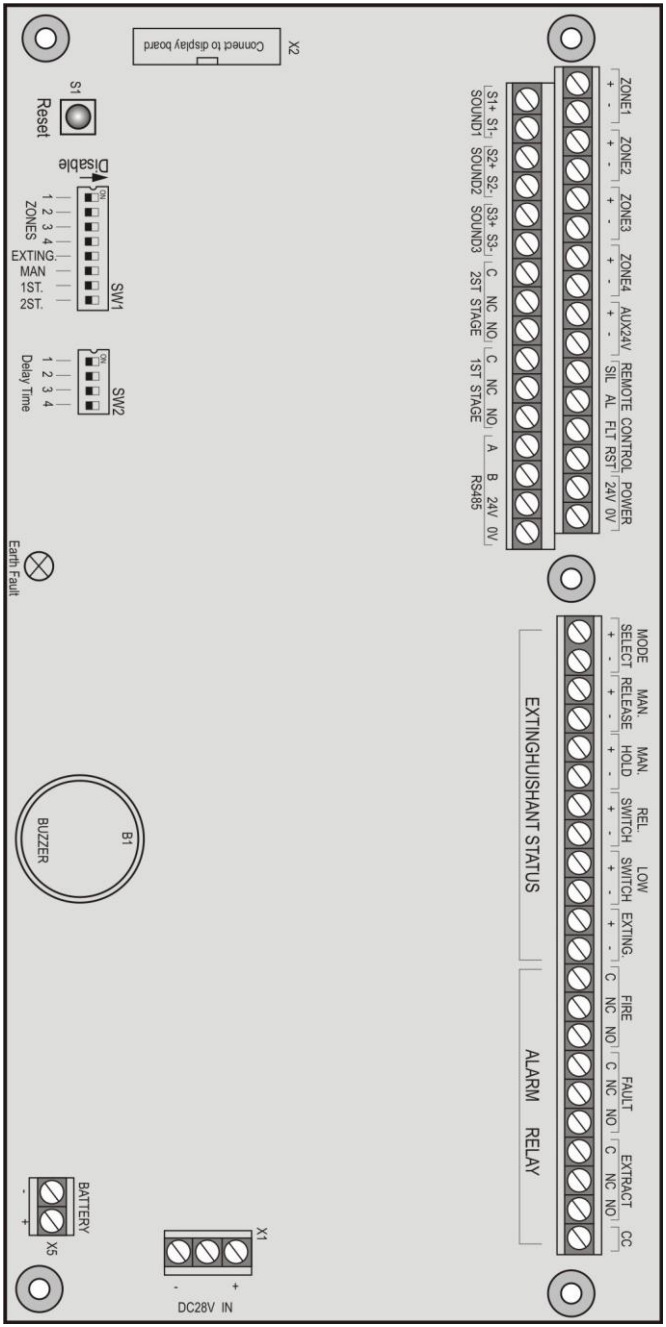


Figure 4 Wiring to the circuit board

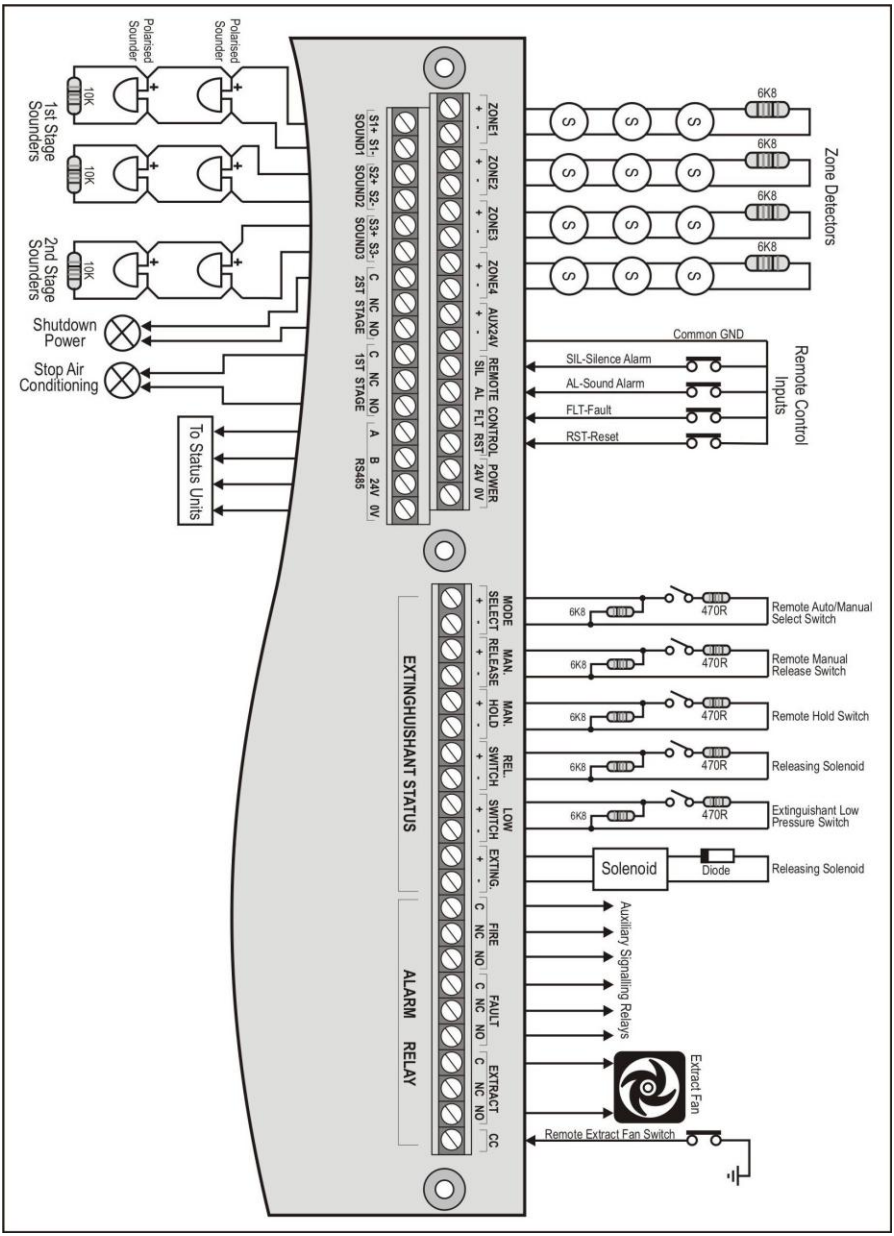
5.2 An overview of the inputs and outputs



5.3 An overview of Main PCB board



5.4 Terminal Wiring Diagram

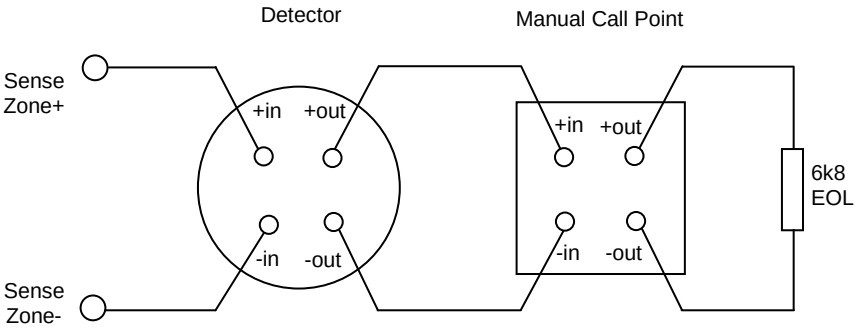


6. Detection zone wiring

The detection zones provide a nominal 20V DC to power conventional detectors and call points.
The wiring is monitored for open and short circuit fault conditions by removing the 6K8 end of line monitoring resistors that are supplied fitted to the control panels' terminals and placing them across the last device that is wired to the zone circuit.

Detection zone circuits must be wired as a single, radial circuit with no spurs or T junctions to enable the monitoring circuit to work correctly.

For systems that are required to comply with BS5839 Part1:2002 detector removal requirements, either detector bases fitted with a Schottky diode should be used and the end of line resistor replaced with an LCMU active end of line monitoring device or zener clamping bases such as Hochiki PA6 or Apollo Savwire used.



The colour bars on a 6k8 resistor are

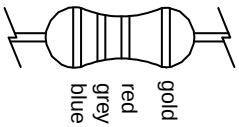
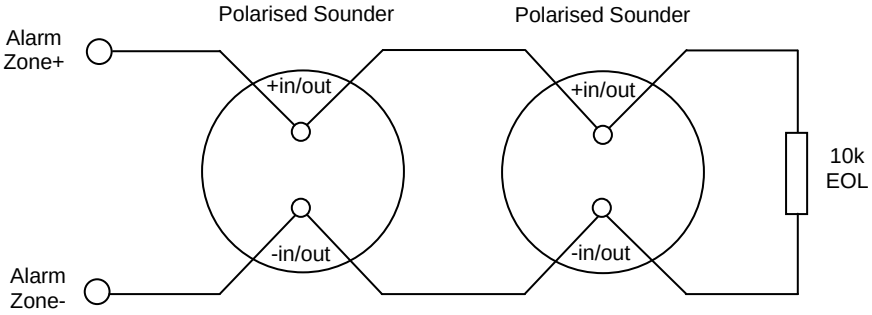


Figure 6. Detection zone wiring

7. Sounder circuit wiring

All sounders must be of the polarised type. If non-polarised sounders are used the control panel will permanently show a fault condition.
Sounder circuits are monitored for open and short circuit faults by placing a 10K end of line monitoring resistor across the last device on the circuit.

Sounder circuits must be wired as a single, radial circuit with no spurs or T junctions to enable the monitoring circuit to work correctly.
A maximum of 1.6 Amps is available for powering sounders with a maximum load of 0.5 Amps on any one circuit.



The colour bars on a 10k resistor are

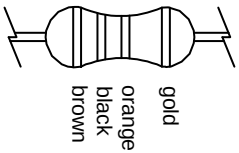


Figure 7. Sounder circuit wiring

8. Connection to monitored inputs

Monitored inputs (Mode select, manual release, Hold, Released pressure switch and Low pressure switch) have the same characteristics as detection zone inputs and require a 6K8 end of line monitoring resistor and a nominal, 470 ohm trigger resistor.

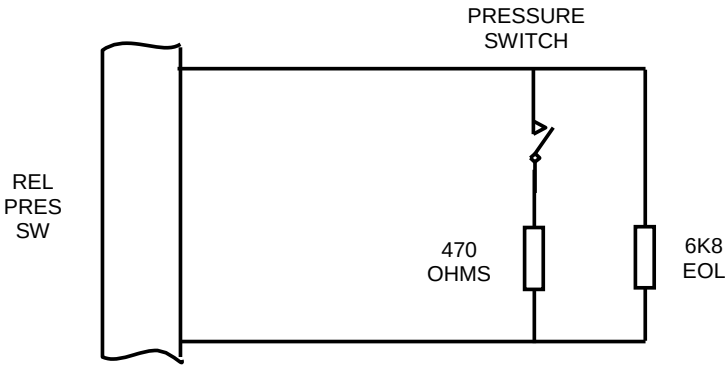


Figure 8. Example of wiring to a monitored input

9. Connection to extinguishant output

The extinguishant output is capable of supplying up to 1 Amp for the maximum duration to a solenoid or 3 Amps for 20 milliseconds to an igniting actuator.

The wiring for solenoids and igniting actuators is different as shown below. Igniting actuators of different types or from different manufacturers should not be mixed on the same circuit.

9.1 Solenoid wiring

Solenoids must have a resistance of greater than 30 ohms to ensure that the maximum current rating of the extinguishant output is not exceeded. Solenoids should be fitted with a suppression diode to prevent EMF generated by the solenoid when it de-energises from causing interference to the operation of the control panel. This diode also acts as the end of line monitoring device.

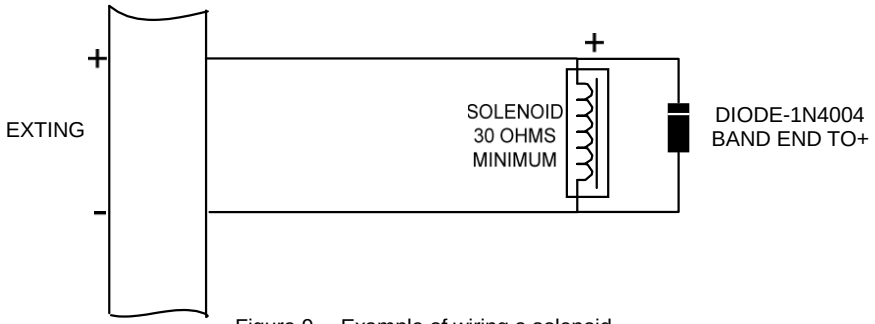


Figure 9. Example of wiring a solenoid

9.2 Igniting actuator wiring

A maximum of four igniting actuators can be wired in series. If only one or two actuators are fitted, a 2R2, 2.5 Watt resistor must be wired in series with them to provide the correct monitoring resistance. The end of line diode can be discarded when igniting actuators are used.

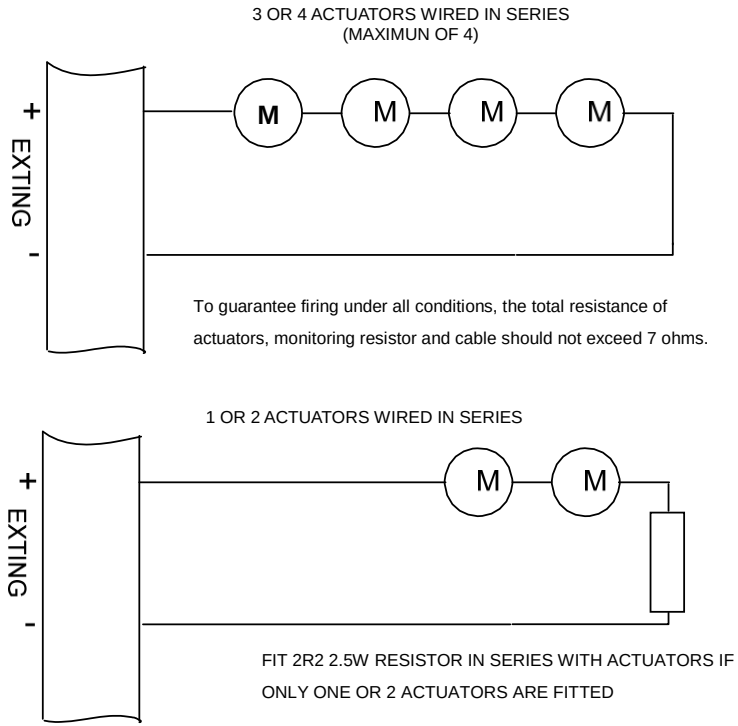


Figure 10. Example of wiring to actuators

10. Connection to remote control terminals

Some functions of the control panel can be controlled externally from the panel if required. The external equipment operating inputs must be restricted by an access level 2 control as defined in EN54-2 The functions are abbreviated at the terminals block as follows:

a) Remote 0 V supply – ROV
b) Silence Alarm – SIL (Silences sounder outputs S1 &S2 only)
c) Sound Alarm – AL (Operates sounder outputs S1 & S2 and not S3)
d) Fault – FLT (Generates a general fault and operates the fault relay)
e) Reset – RST (Resets the system back to normal condition)

To activate these inputs, the remote 0 Volt (R0V) supply must be connected to the input via a normally open switch or contact and via a resistance of no greater than 100 ohms.
All of the remote control inputs are non-latching.

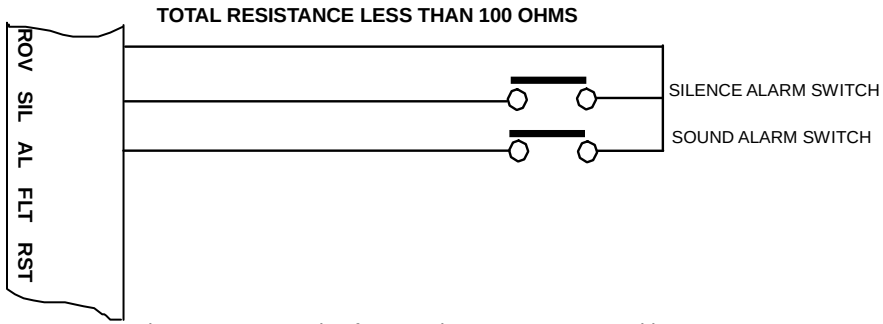


Figure 11. Example of connections to remote control inputs

11. Aux 24V DC supply

An auxiliary 24V DC supply is provided to enable local signaling or control of ancillary systems such as door release controllers.

The terminals for the Aux 24V supply are labeled Aux 24V and ROV. The ROV terminal is the negative terminal and is the same terminal that should be used to switch the remote control terminals.

It is possible to make the ROV terminal pulsing so that by connecting it to the AL terminal via a remote, volt free contact, it can be used to pulse the dedicated sounder circuits in response to a signal from another system for example to give an alert.

The supply is fitted with an electronic, self resetting fuse rated at 0.5 Amps to protect the control panel's 24V supply in the event of a wiring fault.

Any standing load on the Aux 24V supply must be taken into account when calculating battery standby times as standby time will be significantly affected by even modest standing loads. It is recommended that the Aux24V output is not used to power standing loads.

Where the Aux 24V supply is used to power electromechanical devices such as relays or door retainers it is imperative that a suppression diode is fitted across the coil of the device to prevent the generation of high voltage transients back to the control panel power supply.

12. Connection to relay contacts

Volt free changeover relay contacts are provided for local control and signaling if required. These contacts are rated for switching signaling circuits only and the maximum ratings listed in table 1 should not be exceeded under any circumstances.

Typically, the Aux 24V output of the control panel is switched through these relays and used to control other systems.

12.1 Fault relay

The fault relay is normally energised and will de-energise upon any fault condition including total loss of power.

12.2 Fire relay

The fire relay will energise upon activation of a fire condition on any of the zones or pressing of the sound alarm button on the front panel. This relay will not operate upon activation of the remote AL input. The relay will remain activated until the panel is reset.

12.3 1st stage alarm

The first stage alarm will operate upon activation of a **ZONE1** and **ZONE2** that has been contribute to the extinguishant release decision and will

de-activate only when the panel has been reset.(**ZONE3** and **ZONE4** only for fire alarm that would not contribute to the extinguishant release decision.
This relay will also operate upon activation of the panel mounted or a remote manual release switch.

12.4 2nd stage alarm

The second stage alarm relay will operate when the panel enters the activated condition (i.e. the release countdown timer has started) and will de-activate only when the panel has been reset from the released condition.

12.5 Extract relay

The extract relay will operate at access level 2.
This provides a means to vent a room of extinguishant gases but prevents the gases from being vented during a discharge.

13. Connection and configuration of status units and ancillary boards

The control panel should not be powered during the connection of status units or ancillary boards.
Status units and ancillary boards require a four-wire connection from the panel, which drops into each unit and connects to the corresponding data and power, in and out terminals. Two of the cables carry power to the units (24V) and the other two carry data. A four core cable suitable for carrying RS485 data should be used. If this is a twisted pair cable then one twisted pair should be used for the data connections and the second pair used for the power connections
Each status unit has a 4-bit DIL switch and must be allocated a unique address between 1 and 15. Each ancillary board has a 4-bit DIL switch and must be allocated a unique address between 1 and 15.
The address switch is located on the bottom left hand corner of the status unit or ancillary board PCB. Note: The address is only read when the boards are first powered so address switches should not be altered on a system that has power applied.
If a double address occurs on the system then the system will illuminate the General fault and Hold indicators and the buzzer will sound.
The panel display will show the status unit or ancillary boards that have the same address.

14. Panel operation

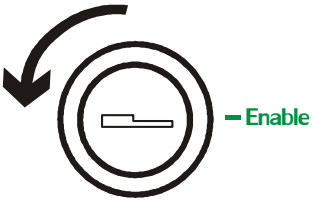
14.1 Normal condition

Under normal conditions, control panels will have only the green, System On LED lit and either the Manual Only or Automatic and Manual LED lit. The display will be blank.

The control panel has 3 access levels. Access level 1 allows unrestricted access, Access level 2 allows access only after operation of the front panel mounted “Enable controls” key switch and Access level 3 allows access after open the panel and operation of the DIP switch on the main PCB board.

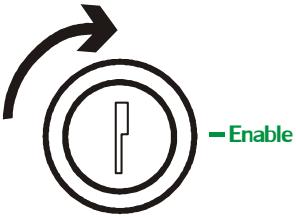
Access level 1: (THE UNABLED STATUS)

Insert the Enable key, **turn to the left**, the panel is switched to the unable status, and then the panel is in the Access level 1, only “Silence Alarm/Fault” button could be operated.



Access level 2: (THE ENABLED STATUS)

Insert the Enable key, **turn to the right**, the panel is switched to the enable status, and then the panel is in the Access level 2, all the buttons could be operated.



14.2 Single zone Fire condition

Upon receipt of a fire condition by activation of a detector or call point, the Common Fire indicator will light and the zonal Fire indicators will flash at around 2Hz.

The fire and local fire relays will also operate and signal any systems to which they are connected. Any sounders connected to the sounder circuits S1 & S2 will operate.

If the zone1 or zone2 that has been activated, the First stage activated LED will light and the first stage relay contact will operate.

14.3 Double zone Fire condition

Upon receipt of a second fire condition when the control panel is switched to Automatic and Manual mode, the Hold input is not active, and the Disable Extinguishant Sub-system function has not been invoked, the control equipment will respond as above and as listed below:

a) The second stage alarm output will operate. (Sounder circuit S3)
b) The 2nd stage contact will operate.

c) The release imminent indicator will operate
d) The seven segment LED displays will indicate the time remaining until release in seconds.
e) The extinguishant output will operate after the configured delay time and for the configured duration after which it shall de-activate.

When detection zones have activated and the activated condition is reached (i.e. the release imminent indicator is lit) it shall not be possible to reset the extinguishant section of the panel until the discharge duration timer has elapsed.

14.4 Manual Release

Upon operation of the front panel mounted manual release button "EXTINGUISHANT RELEASE" , monitored manual release input or a manual release input from a status unit and when the control panel Enable Switch is switched to Enable Stauts, the Hold input is not active, the control equipment will respond as above.
To Manual Release the extinguishant output, insert the Enable key, turn to the right then press the EXTINGUISHANT RELEASE button and hold down the button for above 3 sesonds. The Release Imminent LED lit and the Delay Timer LED show 10 seconds and then count down the delay time, when the delay time reach 0 seconds, the extinguishant output would be activated.
You can press HOLD button to pause the delay time.

14.5 Silence/sound alarms

The Silence/Sound alarm button can only be operated at access level two which means that the Enable Control key must be inserted and turned to the right.
To silence the sounders, insert the Enable Control key, turn to the right and press the Silence/Sound alarm button.
When the sounders have been silenced, the Zone Fire LEDs will change from flashing to a steady state.
Pressing the Silence/Sound alarm whilst the control panel is in this silenced conditions, will cause the sounders to operate again.
The sounders can be toggled on and off with the Silence/Sound alarm button as required.

14.6 Reset

To reset the panel, insert the Enable key, turn to the right then press the Reset button. Latched inputs associated with extinguishant section will reset only after the duration timer has elapsed once the activated condition has been established.

14.7 Zone fault

Removal of a detector from it's base or a fault on any of the zone wiring will cause the Fault LED and Zone Fault LEDs to flash, indicating the zone in which the fault has occurred.

14.8 Sounder fault

A fault on the wiring to sounder circuits (Sound1 and Sound2) will cause the Fault and Sounder Fault LEDs to flash, indicating a fault on the wiring to the sounder circuits.
A fault on the wiring to sounder circuits (Sound3 only) will only cause the Fault LEDs to flash, indicating a fault on the wiring to the sounder circuits.

14.9 Power fault

Failure of the mains power or disconnection of the standby battery will cause the Fault and Power Fault LEDs to light indicating an abnormality in the power supply to the control panel.

14.10 System fault

The System Fault LED will light if the configuration memory has not been set or has become corrupt.

14.11 General fault

It will illuminate under any fault condition.

14.12 Lamp test

All LED indicators can be tested by pressing the Lamp Test button. The Enable Control key is needed to be inserted to switch on the Enable status.
The buzzer can be silenced at any time by pressing the Buzzer Silence button. The enable key does not need to be inserted to silence the buzzer.

14.13 Hold condition

Activation of the hold button pressed or the hold input at the connections inside the panel or at a remotely mounted status unit will cause the Hold Activated indicator to light and the buzzer to sound.
If the control panel is in the 2nd stage alarm condition (i.e. it is in Automatic mode and detection circuits are activated or it is in either Automatic or Manual mode and a manual release input is operated) then the extinguishant release sequence shall be halted and the delay time paused.
When the HOLD button is pressed and the delay time paused, press HOLD button again to continue the extinguishant release sequence.

14.14 Released condition

The released pressure switch input is connected to a pressure switch mounted on the extinguishant cylinder which operates when the extinguishant has been released. This will activate the released indicator on the control panel. If the extinguishant has been released by mechanical means i.e. the control panel is not in the activated condition, operation of the released pressure switch input will cause the second stage sounders and second stage relay to operate.

14.15 Low pressure switch

The low pressure switch input on the panel is connected to a pressure switch on the extinguishant cylinder which will operate if the pressure in the cylinder falls below a set point. This will happen after the extinguishant has been released but may happen before release through a leak. The flooding zone fault indicator will light and the buzzer will sound when this input is operated.

14.16 Change mode

The mode of the system can be toggled between **Manual Only** and **Automatic & Manual** by operating the key switch in the extinguishant status area of the panel.

When the system is in Manual Only mode, the extinguishant cannot be released by the operation of automatic detectors.

Note: The mode can also be changed to manual by the external mode select input or the key switch on any status unit. Any mode select input to manual mode will override any keys witches switched to Automatic and Manual mode.

14.17 Extract fan

The Extract Fan LED indicators can be tested at any time by pressing the Lamp Test button. The Enable Control key does not need to be inserted to test the indicators.

The Extract Fan button can only be operated at access level two which means that the Enable Control key must be inserted and turned to the right.

To extract the fan, insert the Enable Control key, turn to the right and press the Extract Fan button.

When the Extract Fan has been activated, the Extract Fan LED will be light.

Pressing the Extract Fan button whilst the extract fan is in this activated conditions, will cause the extract fan to stop again.

The extract fan can be toggled on and off with the Extract Fan button as required.

15. Access level 3 configuration options

The control panel has many configuration options which can be set at the time of commissioning to suit the requirements of the installation. These options are normally set once and will rarely need to change. The configuration options are only available at access level 3. To enter access level 3, CAREFULLY open the panel fascia, and two DIP switch can be set One 8bit DIP switch SW1 is for disablement of zones and some input and output. Please see the section 14 for details.

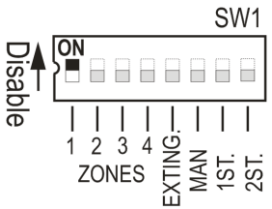
15.1 Disablements

It is possible to disable parts of the system. This may be required if there are works going on in a building which may cause the fire alarm system to operate in error.

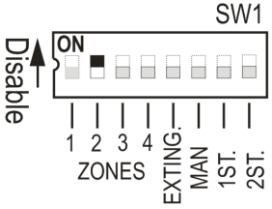
15.1.1 Disable zones

To disable zones, the control panel fascia should be removed. There is one 8bit Dip Switch SW1 on the main PCB board. There are four bit to control the four zone disable or not. Set the corresponding switch bit to on to disable the corresponding zone. See some disable setting sample as below:

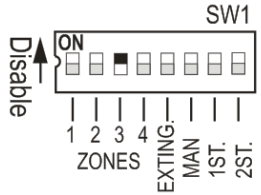
a. disable zone 1



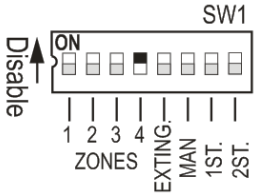
b. disable zone 2



c. disable zone 3



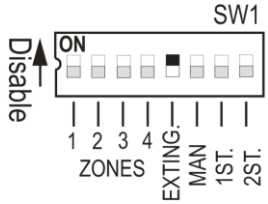
d. disable zone 4



The Disable LED will light and the Zone Fault LED will light for each disabled zone.

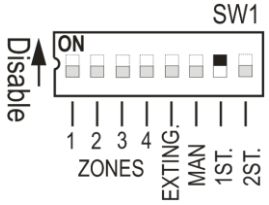
15.1.2 Disable extinguishant subsystem

The 2nd stage relay, 2nd stage alarm output and extinguishant release output can be disabled.



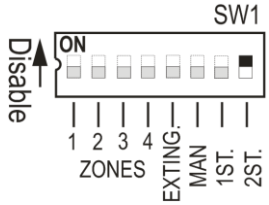
15.1.3 Disable 1st stage contact

The first stage contact can be disabled by selecting disable DIP switch as below.



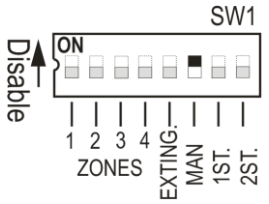
15.1.4 Disable 2nd stage contact

The Second stage contact can be disabled by selecting disable DIP switch as below.



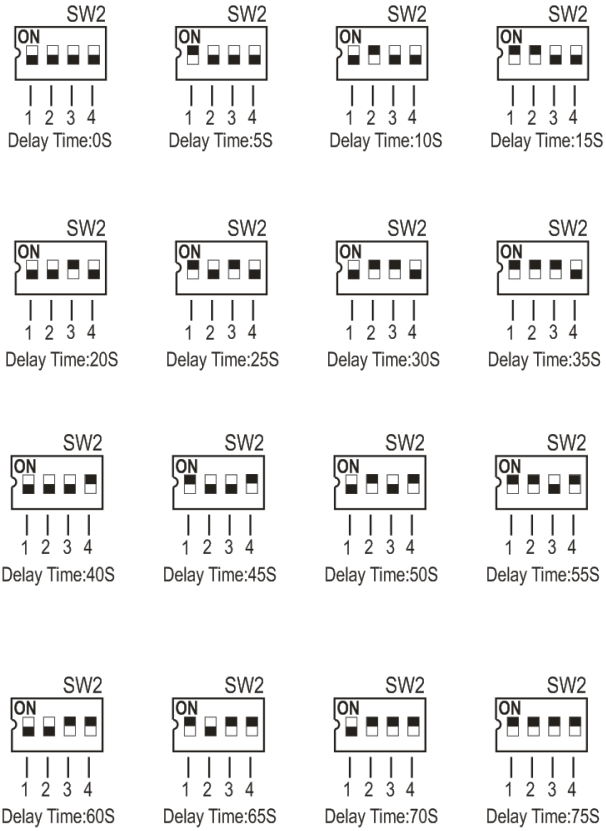
15.1.8 Disable manual release

The Manual release facility can be disabled by selecting disable DIP switch as below.



15.2 Delay time setting

Another 4 bit DIP switch SW2 is for delay time setting.
From left to right, it is bit 1 to bit 4 switch. The value is code 8421 from right to left. Each step is five seconds. The delay time setting is as below:



16. General Controls

16.1 Processor reset

Once started, the microprocessor controlling the panel should continue to run the panel continuously without interruption. If the microprocessor fails to run correctly it can be reset by pressing the RESET button on the PCB inside the control panel.

This should not normally be necessary but should be done as a matter of course if the system is behaving abnormally. The system should resume normal operation within a couple of seconds of pressing the processor reset button.

17. Indications – troubleshooting

To assist in identifying fault conditions which are not detailed on the front of the control panel, a number of internal indicators are visible with the front cover removed as follows:

17.1 AC Fault

Indicates that the 90V AC -270V AC supply is not present and the system is running on standby batteries.

If there is not a power cut, check the panels mains fuse.

17.2 Battery Fault

Indicate that the standby battery has become disconnected or that the charging circuit of the control panel has failed. Check that both batteries are connected and linked together. Test battery. Disconnect battery and ensure that 28 Volts can be measured on battery charger leads.

17.3 Earth fault

Indicate that part of the system wiring is connected to earth. Remove all system wiring and re- connect cables one at a time until the earth fault returns. This will indicate which cable the earth fault is present on.

18. Power supply

The control panel requires a 90V AC -270V AC, 50/60Hz, AC mains power supply which connects to the fused terminal block labeled “AC Mains”.

The output voltage of the power supply is 28V DC +/- 2V and the total current rating including a maximum 0.7A for battery charging is 3 Amps.

The incoming mains cable should be routed well away from other lower voltage wiring by a distance of at least 50mm.
Mains wiring should include an earth conductor, which is securely bonded to the building earth and should enter the enclosure as close as possible to the mains terminal block. Mains wires should be kept very short inside the enclosure and secured together close to the mains terminal block with a cable tie.
The control panel can accept sealed lead acid rechargeable batteries of up to 7Ah maximum capacity.
The maximum current drawn from the batteries when the main power source is disconnected is 3 Amps.
Battery leads are supplied wired to the PCB along with a link to connect the two batteries in the accessory pack.

It is most important that the polarity of the batteries is carefully observed when connecting. Wrongly connected batteries could cause damage to the control panel.

19. Maintenance

The control panels do not require any specific maintenance but should the control panel become dirty it can be wiped over with a barely damp cloth. Detergents or solvents should not be used to clean the panel and care must be taken that water does not enter the enclosure.

The control panel contains sealed lead acid batteries to provide standby power in the event of mains failure.
These batteries have a life expectancy of around 4 years. It is recommended that these batteries be tested in accordance with the battery manufacturer's recommendations annually to determine their suitability for continued standby applications.

Testing of the extinguishant system should only be carried out by trained personnel and must be done with appropriate isolation measures in place to ensure that accidental discharge of the extinguishant agent is avoided.

Should the control panel become faulty the complete electronic assembly and front plate can be replaced.

To do this, any configured options should be noted then both mains and battery power should be removed before the work is started.

The field wiring should be carefully labelled and removed from the terminals. The power terminal block can be unplugged from the PCB by pulling it towards you.

The PCB can now be taken out of the panel by removing the 2 screws. Fitting the new PCB is the reverse of the procedure for removing the board.

20. Commissioning instructions

20.1

Before applying power to the panel, the extinguishant device (solenoid or igniting actuator) must be physically isolated from the system by disconnecting both wires to it. This will prevent any accidental release of extinguishant.

20.2

When power is applied, if all connections are correct, only the green Power On and either the Automatic and Manual or Manual Only indicators should

be lit.
If any fault indicators are lit the wiring to the appropriate input or output should be checked an all faults cleared before proceeding.

20.3
Once the panel is fault free, it can be configured with the desired options.

20.4
Once the panel has been configured the system should be thoroughly tested to ensure that the control panel responds as expected and required.

20.5
After satisfactory testing, any final connections should be made (such as to the extinguishant release actuator).

21. System Log

All events should be properly recorded in this log book. An 'event' should include fire alarms (whether real or false), faults, tests, temporary disconnections and the dates of installing or servicing engineer's visits with a brief note of work carried out and outstanding.

Name and address .....
of installation .....
.....
.....
.....

Person responsible ..... Date.....
for log book ..... Date.....
..... Date.....
..... Date.....

System installed by .....

and is maintained under contract by .....
Tel. .....

Notes:

Date	Time	Zone	Event	Action Required	Date Completed	Initials

Date	Time	Zone	Event	Action Required	Date Completed	Initials