

# Conventional Fire Detection & Gas Extinguishing Control Panel- System Maintenance & Log Book



## Fire Alarm & Extinguishing System Maintenance

A fire alarm & extinguishing system must provide early and reliable warning of the outbreak of fire. It must also be able to initiate the release extinguishing agent. To achieve this, the system remains on watch at all times, ready to activate the alarms and release the extinguishing agent in response to alarm signals from any of the sensors. Regular testing and maintenance must therefore be carried out to ensure the system is always operating correctly.



**WARNING**

**This equipment contains hazardous voltages that can cause death, serious personal injury, or equipment damage. This equipment contains no user serviceable parts. Refer all maintenance to suitably qualified personnel.**

The following guidelines are intended to assist the user in understanding their responsibilities regarding the continued safe and proper operation of their fire alarm system. They do not attempt to provide detailed site-spe-

cific test and maintenance routines. The user should consult their local Fire Prevention Officer for specific advice.

## User responsibilities

### Responsible person

A single person should be appointed by the user to supervise all matters relating to the fire alarm and extinguishing system. In particular:

- Ensuring that the system is checked at least once every 24 hrs and that there are no faults on the system.
- Ensuring that the system is correctly tested and maintained in line with the recommendations of the Fire Prevention Officer.
- That appropriate records are maintained:
  - The Logbook should be kept up to date and made available for inspection by any authorised person.
- That the relevant occupants are aware of their roles and responsibilities in connection with the fire alarm system, ensuring -
  - That occupants are instructed in the proper use of the system including how to interpret the alarm indications.
  - That occupants are familiar with the appropriate user controls including the correct use of the disablement features and understand how to avoid the generation of false alarms.
- That situations are avoided that are detrimental to the standard of protection provided by the system:
  - That a clear space of at least 500mm is preserved around and below all fire detectors.
  - That all manual call points remain unobstructed and conspicuous.
  - Establishing a liaison with those responsible for changes to or maintenance of the building to ensure that changes do not compromise the effectiveness of the system.
  - Updating record documents and operating instructions when building changes are made.
- Ensuring that the level of false alarms is minimised.
- Ensuring that the following spare parts are held within the premises:
  - 6 replacement glasses and test keys for manual call points [unless the system has less than 12 MCPs, in which case only 2 set of glasses and keys are required.

- 1 set of spare fuses.
- Any other spare parts recommended by the servicing agent.

Your local Fire Prevention Officer can provide recommendations as to how these responsibilities should be discharged.

## Weekly Test Routine by the User



### Note

Ensure that the extinguishing system is physically disabled by electrical or mechanical disconnection before carrying out any tests.



### WARNING

**Before testing, the operator must be aware both of the operation of all devices fitted to any auxiliary circuits and the consequences of their operation (e.g. a connection to alert the Emergency fire Services).**

Refer to Control Panel User Instructions for correct panel access and user operation.

The following guide is not comprehensive and you should consult your local Fire Prevention Officer to determine the most suitable test routine for your installation.

- Contact the alarm-receiving centre immediately before and after the weekly test, to prevent unwanted alarms and confirm alarm receipt.
- A manual call point and a fire detector [on different zones] should be operated during working hours on the same day each week at approximately the same time of day.
  - The zones operated should be varied each month.
  - The manual call points and fire detectors should be tested on a rotating basis so that all installed units are checked at least once during a three month period.
  - To operate a manual call point use the Test Key provided. To operate a detector, use a smoke generator or heat source as appropriate for the type of detector.
- Operation of the sounders should be confirmed, identifying any area of poor audibility.
- The receipt of the fire signal at any remote monitoring centres should be confirmed.
- The operation of auxiliary items such as door closers should be confirmed.

- Operate the Test Lamps switch - check all indicators operate as described in the panel manual.
- Test one hold, one abort and one auto/manual switch (if fitted). These should be on separate Status Lamp Units and should be varied each week.
- Check that operation of the hold switch indicates a hold condition on the Status Lamp Unit.
- Check that operation of the abort switch indicates an abort condition on the Status Lamp Unit.
- Check that operation of the auto/manual switch changes the panel from automatic & manual to manual only operation, as indicated at the Status Lamp Unit.
- Operate test lamps on each Status Lamp Unit and observe that all indicators operate.
- Check the extinguishing agent containers for loss of pressure. Containers should be replaced or refilled if a loss of 10% or more occurs.
- Check the operating position of valves.
- Enter details of the test in the system log-book.

If shift working is operated, additional fire tests should be arranged to ensure all staff are familiar with the alarm signals.

To avoid confusion, the sounder operation during the test should be limited to 1 minute.

## Monthly Test Routine

If an automatically started emergency generator is used as part of the stand-by power supply, start the generator by simulating the failure of the normal power supply and operate on load for at least 1 hour. At the end of the test, check and replenish fuel, oil and coolant levels.



### WARNING

**Any person undertaking the above mentioned tasks should be adequately trained and competent to carry out the tests safely.**

## Inspection and Servicing

This section provides an outline of the inspection and servicing recommendations. For further, more detailed guidance, consult your local Fire Prevention Officer.



### Note

It is essential that regular, periodic inspection and servicing is carried out on the system.

This work should only be undertaken by a competent person with appropriate specialist knowledge.

### **Recommendations for periodic inspection and test of the system**

The period between successive inspection and service visits should be based on a risk assessment, taking into consideration the type of system installed, the operating environment and other site related issues which may affect the long term operation of the system. The period between visits should not exceed 6 months.

The following checks should be made:

- Entries in the logbook should be checked and any remedial action taken.
- A visual inspection should be made to check whether structural or occupancy changes have affected the siting of manual call points or sounders.
- The record of false alarms should be checked and appropriate action taken if the rate of false alarms exceeds the recommendations of your local Fire Prevention Officer.
- The batteries should be disconnected and a full load alarm simulated.
- The batteries and their connections should be examined to ensure they are in good serviceable condition and are unlikely to fail before the next periodic inspection. The batteries should be subjected to a momentary load test.
- The fire alarm functions of the control and indicating equipment should be checked by operating a device in each zone.
- The operation of the fire alarm devices [sounders] should be checked.
- All controls and indications on the fire panel should be checked.
- The operation of any automatic signalling link to a remote monitoring location should be checked.
- All ancillary functions of the fire alarm panel should be checked.
- All fault indicators and their circuits should be checked, where practicable, by simulation of the fault condition.
- On completion, any defects should be recorded in the logbook and reported to the responsible person, and corrective action should be taken.

### **Recommendations for inspection and test of the system over a 12-month period**

In addition to those tests listed above, the following are recommended:

- Every manual call point should have been operated at least once.
- All automatic fire detectors should have been examined and tested via the appropriate means.
- All fire alarm devices should have been tested and checked for correct location.

- A visual inspection should be made to confirm that all cable fittings and equipment are secure, undamaged and adequately protected.
- The fire alarm panel configuration should be checked to ensure it complies with the Panel Configuration Record. Any changes should be verified with the responsible person and the Panel Configuration Record updated if the changes are authorised.
- The standby power capacity should be verified as sufficient for the system.
- On completion, any defects should be recorded in the logbook and reported to the responsible person, and corrective action should be taken.

### **Battery Replacement**

The useful life of the standby batteries in this application is three years. The batteries must be replaced after this time. To ensure this, when first installed, the battery should be clearly labelled with the date of installation and scheduled replacement date.

## **Non- Routine attention**

### **Appointment of a new servicing organisation**

A special inspection of an existing fire alarm system and its documentation should be carried out when a new servicing organisation is appointed, identifying any areas of major non-compliance with the recommendations of your local Fire Prevention Officer.

### **Repair of faults or damage**

- Emergency call out arrangements should be made and contact details should be prominently displayed at the fire control and indicating panel.
- The User should record all faults or damage in the Log Book and arrange for repair to be carried out as soon as possible.

### **Modifications to the system**

- The responsibility for any modification must reside with a person who is competent in the basic principles of fire alarm system design and conversant with local regulations.
- All the effects of the proposed modification on the system should be checked for compliance with the requirements of fire safety legislation.
- All modifications should be agreed in writing with the Responsible Person and, where appropriate, the enforcing authority and the insurers.
- A site-specific test schedule should be produced to ensure that all elements of the modification and its

affects on the system are fully tested in line with the recommendations of your local Fire Protection Officer.

- On completion of the modifications, all as-fitted drawings and relevant documentation should be updated.
- On completion of the commissioning of the work and tests a modification certificate complying with the recommendations of your local Fire Prevention Officer should be issued.

### **Action to address an unacceptable rate of false alarms**

Consult your local Fire Prevention Officer.

### **Inspection and test of the system following any fire**

As soon as possible after the fire:

- Inspect and test every manual call point, fire detector or fire alarm device [sounder] that might have been affected by the fire.
- Examine and test any other part of the system lying within the fire area and other areas affected by corrosive smoke from the fire for signs of damage (Cables, power supplies, control equipment etc).
- Any circuits external to the control and indicating equipment that could have been affected by the fire should be tested.
- Any defects should be recorded in the Log Book and brought to the attention of the Responsible Person.

### **Inspection and tests of the system after long periods of disconnection**

The system should be inspected and tested as per the recommendations for 12-monthly testing.

## **Maintaining the Log Book**

The Log Book should be used to record the following:

- The Name of the Responsible Person.
- Brief details of the maintenance arrangements.
- Dates and times of all fire alarm signals [whether false, genuine, test or fire drill] along with the type of activating device [manual call point or detector] and its location.
- Causes, circumstances surrounding and category of all false alarms. The categories are:
  - U - Unwanted alarms- caused by a combination of environmental influences, fire-like phenomena, inappropriate action by people in the building, accidental damage.
  - E -Equipment false alarms - caused by malfunction of equipment forming part of the fire detection and alarm system.
  - M - Malicious false alarms - arising from malicious action.
  - G - False alarms with good intent - by persons with a genuine belief that there is a fire.
  - ? - Unknown - category to be used where there is any doubt about the actual cause.
- Dates, times and types of all tests.
- Dates, times and types of all faults and defects.
- Dates and types of all maintenance [service visit or non-routine attention].
- Temporary disconnections or disablements.
- Dates and brief description of system changes, component or equipment replacements.
- Notes of any outstanding work

When not in use, the logbook should be stored in a safe, preferably fireproof location.

## Reference Data

<b>Address of protected premises:</b>	
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<b>Responsible Person:</b>	
Name:	
Normal Location:	
Telephone No:	

<b>Responsible Person:</b>	
Name:	
Normal Location:	
Telephone No:	

<b>System Designer:</b>	
Name:	
Company:	

<b>System Installer:</b>	
Name:	
Company:	

<b>System Commissioned by:</b>	
Name:	
Company:	

<b>System Accepted by:</b>	
Name:	
Company:	

<b>System Verification by:</b>	
Name:	
Company:	

<b>Maintenance Contractor:</b>	
Company:	
Telephone No:	
Contact No:	
Contact expiry date:	
Normal max attendance time:	

<b>Expendable component replacement periods [List]:</b>	
<b>Component Description</b>	<b>Date For Replacement</b>
1.	
2.	
3.	
4.	
5.	
6.	
7.	

### List of Equipment Fitted

<b>Control Panel</b>				
Type:	<b>FIRECLASS Conventional Fire Detection &amp; Gas Extinguishing Panel</b>			
Serial Number:				
<b>Zone Configuration:</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>AUX Zone</b>	<b>Manual Release</b>
S = Standard I = Intrinsically Safe				
<b>Power Supply</b>				
Type:				
Serial Number:				
<b>Batteries</b>				
Type & Capacity:				
<b>Detectors</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>AUX Zone</b>	<b>Manual Release</b>
Number and type:				<b>Not Allowed</b>
<b>Manual Call Points</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>AUX Zone</b>	<b>Manual Release</b>
Number and type:	<b>Not Allowed</b>	<b>Not Allowed</b>		
<b>Sounders</b>	<b>SNDR1</b>	<b>SNDR2</b>	<b>EXT. SNDR</b>	
Number and type:				

<b>Status Lamp Units</b>							
Address	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Type Code (0 to 4)							

<b>Ancillary Equipment</b>	

## Configuration Design/Record Chart

## Revision Record

- Job/Site Name:
- Date raised:
- By (Name)

Date Changed	By (Name)	Change



## Motherboard DIL Switches
























Switch No.	Position	Function	Actual Setting																																																																						
1-1	Off 	Zone I.S. Configuration mode disabled.	N/A																																																																						
	On 	Zones can be configured to Intrinsically Safe monitoring mode																																																																							
1-2	Off 	<table border="1"> <thead> <tr> <th>Pre-Discharge Delay Duration</th> <th>S/W 1/2 (5 sec)</th> <th>S/W 1/3 (10 sec)</th> <th>S/W 1/4 (20 sec)</th> <th>S/W 1/5 (40 sec)</th> </tr> </thead> <tbody> <tr> <td>0 sec (no delay)</td> <td>Off</td> <td>Off</td> <td>Off</td> <td>Off</td> </tr> <tr> <td>5 sec</td> <td>On</td> <td>Off</td> <td>Off</td> <td>Off</td> </tr> <tr> <td>10 sec</td> <td>Off</td> <td>On</td> <td>Off</td> <td>Off</td> </tr> <tr> <td>15 sec</td> <td>On</td> <td>On</td> <td>Off</td> <td>Off</td> </tr> <tr> <td>20 sec</td> <td>Off</td> <td>Off</td> <td>On</td> <td>Off</td> </tr> <tr> <td>25 sec</td> <td>On</td> <td>Off</td> <td>On</td> <td>Off</td> </tr> <tr> <td>30 sec</td> <td>Off</td> <td>On</td> <td>On</td> <td>Off</td> </tr> <tr> <td>35 sec</td> <td>On</td> <td>On</td> <td>On</td> <td>Off</td> </tr> <tr> <td>40 sec</td> <td>Off</td> <td>Off</td> <td>Off</td> <td>On</td> </tr> <tr> <td>45 sec</td> <td>On</td> <td>Off</td> <td>Off</td> <td>On</td> </tr> <tr> <td>50 sec</td> <td>Off</td> <td>On</td> <td>Off</td> <td>On</td> </tr> <tr> <td>55 sec</td> <td>On</td> <td>On</td> <td>Off</td> <td>On</td> </tr> <tr> <td>60 sec</td> <td>Off/On</td> <td>Off/On</td> <td>On</td> <td>On</td> </tr> </tbody> </table>	Pre-Discharge Delay Duration	S/W 1/2 (5 sec)	S/W 1/3 (10 sec)	S/W 1/4 (20 sec)	S/W 1/5 (40 sec)	0 sec (no delay)	Off	Off	Off	Off	5 sec	On	Off	Off	Off	10 sec	Off	On	Off	Off	15 sec	On	On	Off	Off	20 sec	Off	Off	On	Off	25 sec	On	Off	On	Off	30 sec	Off	On	On	Off	35 sec	On	On	On	Off	40 sec	Off	Off	Off	On	45 sec	On	Off	Off	On	50 sec	Off	On	Off	On	55 sec	On	On	Off	On	60 sec	Off/On	Off/On	On	On	
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	On 	40 sec																																																																							
1-5	Off 	50 sec																																																																							
	On 	60 sec																																																																							
1-6	Off 	Sounders operate in response to zone one-man test.																																																																							
	On 	Sounders do not respond to a zone one-man test.																																																																							
1-7	Off 	Buzzer enabled –operates for faults, alarms & button presses																																																																							
	On 	Buzzer disabled – only operates for button presses																																																																							
1-8	Off 	Non-latched fault indication																																																																							
	On 	Latched fault indication																																																																							
1-9	Off 	Activation of Manual Release starts the Pre-discharge delay																																																																							
	On 	Activation of Manual Release releases the extinguishant without a delay																																																																							
1-10	Off 	Panel Buzzer does not change state during the last 5 seconds of the Pre-discharge delay timer																																																																							
	On 	Panel Buzzer pulses rapidly during the last 5 seconds of the Pre-discharge delay timer (even if silenced)																																																																							
1-11	Off 	Alarm required on both zones 1 & 2 before the Pre-discharge delay timer is started (in Automatic & Manual mode)																																																																							
	On 	Alarm required on either zone 1 or zone 2 to start the Pre-discharge delay timer (in Automatic & Manual mode)																																																																							
1-12	Off 	Extinguishant Discharged condition is indicated when Pressure Switch Input is activated																																																																							
	On 	Extinguishant Discharged condition is indicated when Actuator Circuits are energised																																																																							

Table 1: Motherboard DIL Switches

























Switch No.	Position	Function						Actual Setting
2-1	Off 	Actuator Circuits are monitored for Short Circuit Fault						
	On 	Actuator Circuits are not monitored for Short Circuit Fault						
2-2	Off 	<b>Extinguishing Reset Inhibit Delay Duration</b>	<b>S/W 2/2</b>	<b>S/W 2/3</b>	<b>S/W 2/4</b>	<b>S/W 2/5</b>	<b>S/W 2/6</b>	
	On 	0 minutes (no delay)	Off	Off	Off	Off	Off	
		1 minute	On	Off	Off	Off	Off	
		2 minutes	Off	On	Off	Off	Off	
2-3	Off 	3 minutes	On	On	Off	Off	Off	
		4 minutes	Off	Off	On	Off	Off	
		5 minutes	On	Off	On	Off	Off	
		6 minutes	Off	On	On	Off	Off	
		7 minutes	On	On	On	Off	Off	
	On 	8 minutes	Off	Off	Off	On	Off	
		9 minutes	On	Off	Off	On	Off	
		10 minutes	Off	On	Off	On	Off	
		11 minutes	On	On	Off	On	Off	
		12 minutes	Off	Off	On	On	Off	
2-4	Off 	13 minutes	On	Off	On	On	Off	
		14 minutes	Off	On	On	On	Off	
	On 	15 minutes	On	On	On	On	Off	
		16 minutes	Off	Off	Off	Off	On	
2-5	Off 	17 minutes	On	Off	Off	Off	On	
		18 minutes	Off	On	Off	Off	On	
		19 minutes	On	On	Off	Off	On	
	On 	20 minutes	Off	Off	On	Off	On	
		21 minutes	On	Off	On	Off	On	
		22 minutes	Off	On	On	Off	On	
		23 minutes	On	On	On	Off	On	
2-6	Off 	24 minutes	Off	Off	Off	On	On	
		25 minutes	On	Off	Off	On	On	
		26 minutes	Off	On	Off	On	On	
	On 	27 minutes	On	On	Off	On	On	
		28 minutes	Off	Off	On	On	On	
		29 minutes	On	Off	On	On	On	
2-7	Off 	Actuator Circuits Remain energised until Extinguishing system Reset						
	On 	Actuator Circuits automatically de-energise after 1 minute						
2-8	Off 	Fire Alarm & Extinguishing System can be reset without silencing the sounders first (EN54-2 requirement)						
	On 	Sounders must be silenced before Fire Alarm & Extinguishing System can be reset (BS5839 recommendation)						
2-9	Off 	Repeater output 1 operates for Emergency Hold activation, Repeater output 2 operates for Emergency Abort activation						
	On 	Repeater output 1 operates when panel is in Automatic & Manual mode, Repeater output 2 operates when panel is in Manual Only mode						
2-10	Off 	Status Lamp Unit Configuration mode disabled.						N/A
	On 	Panel can be configured with Status Lamp Unit type codes						
2-11	Off 	Manual Release zone & Intrinsically Safe zones require a 10K EOL						
	On 	Manual Release zone & Intrinsically Safe zones require a 3K9 EOL						
2-12	Off 	Gas Low input activated by presence of 680R resistor (normally open contact)						
	On 	Gas Low input activated by removal of 680R resistor (normally closed contact)						

Table 1: Motherboard DIL Switches (cont.)

**Record of system alterations**

Details of any alterations made to the system should be recorded below. In addition to date and engineer's details, this information should include product descriptions and references and reasons for the alterations.

Date	Engineer's Details	Detail of Alterations Made	Notes	Responsible Person Signature

Table 2: Record of system alterations

Date	Time	Event (Test, fire alarm signal, fault)	Zone (Where applicable)	Device (Where appli- cable)	Action required (Where applicable)	Date completed (Where applicable)	Initials

Table 3: Record of events other than false alarms or maintenance work

<b>Action Completed</b>										
<b>Further Action Required</b>										
<b>Category of False Alarm (U,E,M,G)</b>										
<b>Findings of Maintenance Engineer</b>										
<b>Maintenance Visit Required (Yes/No)</b>										
<b>Cause/Brief Circumstances (Where cause is unknown, record activities in the area)</b>										
<b>Device that triggered the alarm system</b>										
<b>Zone</b>										
<b>Time</b>										
<b>Date</b>										

Table 4: Record of false alarms

<b>Date</b>	<b>Time</b>	<b>Zone (Where Applicable)</b>	<b>Device (Where Applicable)</b>	<b>Reason for work</b>	<b>Work carried out</b>	<b>Further work required</b>	<b>Signature</b>

Table 5: Record of maintenance work

<b>Date</b>	<b>Time</b>	<b>Zone (Where Applicable)</b>	<b>Device (Where Applicable)</b>	<b>Reason for work</b>	<b>Work carried out</b>	<b>Further work required</b>	<b>Signature</b>

Table 5: Record of maintenance work (cont.)

Date	MCP Tested Zone/ Number	Detector Tested Zone/ Number	Sounders Tested	Panel Lamps Test	SLU Lamps Test	Hold Switch Tested (SLU No.)	Abort Switch Tested (SLU No.)	Auto/Manual Switch Tested (SLU No.)	Extinguishant Pressure Checked	Valves Checked	Notes	Signed
E.g. 23/09/09	A/3	1/1	P	P	P	1P	1P	1P	P	P		

Table 6: Weekly Test Record



<b>Date</b>	<b>MCP Tested Zone/ Number</b>	<b>Detector Tested Zone/ Number</b>	<b>Sounders Tested</b>	<b>Panel Lamps Test</b>	<b>SLU Lamps Test</b>	<b>Hold Switch Tested (SLU No.)</b>	<b>Abort Switch Tested (SLU No.)</b>	<b>Auto/Manual Switch Tested (SLU No.)</b>	<b>Extinguishant Pressure Checked</b>	<b>Valves Checked</b>	<b>Notes</b>	<b>Signed</b>

Table 7: Weekly Test Record

