

Precept^{en} Fire Alarm Control Panel

**System Maintenance
and
Log Book**

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1. Fire Alarm System Maintenance

A fire alarm system must provide early and reliable warning of the outbreak of fire. To achieve this, the system remains on watch at all times, ready to activate the alarms in response to a signal 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 have been developed from the recommendations provided in BS5839-1: 2002. They 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-specific test and maintenance routines. The user is strongly recommended to consult the full text provided in the relevant sections of BS5839-1: 2002.

2. User responsibilities

2.1. Responsible person

A single person should be appointed by the user to supervise all matters relating to the fire alarm 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 BS5839.
- 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

BS 5839-1:2002 Section 7 provides recommendations as to how these responsibilities should be discharged.

3. Weekly Test Routine by the User

- **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.**
(Example: A connection to call the fire brigade)
- Refer to Control Panel User Instructions for correct panel access and user operation.
- The following guidelines are based on the recommendations provided by BS5839-1 2002:
 - 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.
 - 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.

4. 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.

5. Inspection and Servicing

This section provides an outline of the inspection and servicing recommendations. For further, more detailed guidance, refer to BS5839-1:2002.

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.

5.1. 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:

1. Entries in the logbook should be checked and any remedial action taken.
2. A visual inspection should be made to check whether structural or occupancy changes have affected the siting of manual call points or sounders.
3. The record of false alarms should be checked and appropriate action taken if the rate of false alarms exceeds the recommendations of BS5839-1:2002.
4. The batteries should be disconnected and a full load alarm simulated.

5. The batteries and their connections should be examined to ensure they are in good serviceable condition and are unlikely to fail before the next quarterly inspection. The battery should be subjected to a momentary load test.
6. The fire alarm functions of the control and indicating equipment should be checked by operating a device in each zone.
7. The operation of the fire alarm devices [sounders] should be checked.
8. All controls and indications on the fire panel should be checked.
9. The operation of any automatic signalling link to a remote monitoring location should be checked.
10. All ancillary functions of the fire alarm panel should be checked.
11. All fault indicators and their circuits should be checked, where practicable, by simulation of the fault condition.
12. On completion, any defects should be recorded in the logbook and reported to the responsible person, and corrective action should be taken.

5.2. Recommendations for inspection and test of the system over a 12-month period

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

1. Every manual call point should have been operated at least once.
2. All automatic fire detectors should have been examined and tested via the appropriate means.
3. All fire alarm devices should have been tested and checked for correct location.
4. A visual inspection should be made to confirm that all cable fittings and equipment are secure, undamaged and adequately protected.
5. 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.
6. The standby power capacity should be verified as sufficient for the system.
7. On completion, any defects should be recorded in the logbook and reported to the responsible person, and corrective action should be taken.

5.3. 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.

6. Non- Routine attention

6.1. 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 requirements of BS5839-1:2002.

6.2. 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.

6.3. 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 the relevant section of BS5839-1:2002.
- All the effects of the proposed modification on the system should be checked for compliance with BS5839-1:2002 and 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 BS5839-1: 2002 section 6.

- On completion of the modifications, all as-fitted drawings and relevant documentation should be up-dated.
- On completion of the commissioning of the work and tests a modification certificate complying with the recommendations of BS5839-1:2002 Section 6 should be issued.

6.4. Action to address an unacceptable rate of false alarms:

- Guidance is provided in Sections 3 and 6 of BS5839-1:2002

6.5. 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.

6.6. 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

7. 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. [See BS5839 –1:2002 Section 3]. 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.

8. Reference data:

Address of protected premises:

Responsible Person:

Name:

Normal location:

Telephone No:

System Designer:

Name:

Company:

System installer:

Name:

Company:

System commissioned by:

Name:

Company:

System Accepted by:

Name:

Company:

System verification by:

Name:

Company:

Maintenance contractor:

Company:

Telephone No:

Contact Name:

Contact expiry date:

Normal max attendance time:

Expendable component replacement periods

[List]:

9. List of Equipment Fitted

Control Panel

Type:

Serial Number:

Number of Zones:

Power Supply

Type:

Serial number:

Batteries:

Detectors

Number and type:

Manual Call Points

Number and type:

Sounders

Number and type:

Repeater panels

Quantity

With/without PSU and
battery.

Ancillary Equipment

Table 1-Motherboard DIL Switches













































Switch No.	Position	Function	Actual Setting
1-1	Off 	Fire Protection relays operate for a fire condition on any zone.	
	On 	Fire Protection relays operate for a fire condition on any latching fire zone.	
1-2	Off 	Silence and reset available as normal.	
	On 	Prevents alarms being silenced or reset for a period of 3 minutes after a fire alarm condition occurs	
1-3	Off 	Not used	
	On 	Not used	
1-4	Off 	Configuration mode disabled.	
	On 	Zones can be configured to non-latch mode via the Engineer's Select feature.	Table 2
1-5	Off 	Configuration mode disabled.	
	On 	Zones can be configured to Intrinsically Safe monitoring mode	Table 2
1-6	Off 	Configuration mode disabled	
	On 	Zones can be configured to "short circuit to fire" mode.	
1-7	Off 	Configuration mode disabled	
	On 	Zones can be configured to Delay Mode via the Engineer's Select feature.	Table 2
1-8	Off 	Configuration mode disabled.	
	On 	Configure delayed outputs via the Engineer's Select feature.	Table 3
1-9	Off 	Single Stage Delay Mode.	
	On 	Two Stage Delay Mode.	
1-10	Off 	Sounders operate on any fire condition including evacuate.	
	On 	Selects sounders to operate only when the panel is in the evacuate condition	
2-1	Off 	Reset available when panel is in the [un silenced] fire or fault condition	
	On 	Fire Condition Reset available only when panel is in Alarm Silenced condition.	
2-2	Off 	Delay Duration	<i>Mark actual settings on table</i>
	On 	Delay disabled	
2-3	Off 	1 min	
	On 	2 min	
2-4	Off 	3 min	
	On 	4 min	
2-5	Off 	5 min	
	On 	6 min	
2-6	Off 	7 min	
	On 	8 min	
2-7	Off 	9 min	
	On 	10 min	
2-6	Off 	General Alarm Sounder Mode	
	On 	Zonal Sounder Mode	
2-7	Off 	Zonal sounders for zones in the fire condition operate continuously until silenced - all other zones are silent.	
	On 	Zonal sounders operate continuously - all other sounders pulse until silenced.	
2-8	Off 	Sounders operate in response to zone one-man test.	
	On 	Sounders do not respond to a zone one-man test.	
2-9	Off 	Buzzer enabled.	
	On 	Buzzer disabled	
2-10	Off 	Non-latched faults	
	On 	Latched faults.	

Table 2 - Zone Configuration Design/Record

Zone No	Zone Configuration			
	Non-Latch	Intrinsically Safe	Short Circuit = Fire	Delay
1				
2				
3				
4				
5				
6				
7				
8				
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13				
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31				
32				

Table 3 - Output Delay Configuration Design/Record

Output	Output Configuration	
	Delay	Non-delay
Fire Routing		
Fire protection		
Alarm Devices		

Table 4 - 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

