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**Fire detection and alarm systems —**  
**Part 1:**  
**General and definitions**

*Systèmes de détection et d'alarme d'incendie —*  
*Partie 1: Généralités et définitions*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 7240-1 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 3, *Fire detection and alarm systems*.

This second edition cancels and replaces the first edition (ISO 7240-1:1988), which has been technically revised.

ISO 7240 consists of the following parts, under the general title *Fire detection and alarm systems*:

- *Part 1: General and definitions*
- *Part 2: Control and indicating equipment*
- *Part 4: Power supply equipment*
- *Part 5: Point-type heat detectors*
- *Part 6: Carbon monoxide fire detectors using electro-chemical cells*
- *Part 7: Point-type smoke detectors using scattered light, transmitted light or ionization*
- *Part 9: Test fires for fire detectors* [Technical Specification]
- *Part 10: Point-type flame detectors*
- *Part 11: Manual call points*
- *Part 12: Line type smoke detectors using a transmitted optical beam*
- *Part 13: Compatibility assessment of system components*
- *Part 14: Guidelines for drafting codes of practice for design, installation and use of fire detection and fire alarm systems in and around buildings* [Technical Report]
- *Part 15: Point type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor* [title changed from Multisensor detectors by ISO 7240-15:2004/Cor.1:2005]

- *Part 16: Sound system control and indicating equipment*
- *Part 19: Design, installation, commissioning and service of sound systems for emergency purposes*
- *Part 21: Routing equipment*
- *Part 22: Smoke detection equipment for ducts*

The following part is under preparation:

- *Part 8: Carbon monoxide fire detectors using an electro-chemical cell in combination with a heat sensor*

## Introduction

ISO 7240 (all parts) specifies components of fire detection and alarm systems, requirements for their interconnection and installation and the performance, testing and servicing of parts or of complete systems.

ISO 7240 (all parts) applies to fire detection and alarm systems for buildings. It can be used as a basis for the assessment of systems for other purposes, e.g. mines, ships. It does not preclude the manufacture or use of systems having special characteristics suitable for protection of specific risks against specific hazards.

A fire detection and alarm system is required to function satisfactorily not only in the event of fire, but also during and after exposure to conditions likely to be met in practice such as corrosion, vibration, direct impact, indirect shock and electromagnetic interference. Some tests specified are intended to assess the performance of system components under such conditions.

The performance of components of fire detection and alarm systems is assessed from the results obtained in the specific tests; ISO 7240 (all parts) is not intended to place any other restrictions on the design and construction of such components.

If appropriate, ISO 7240 (all parts) can be applied to the detection part of extinguishing systems, excluding sprinkler heads, although the sensitivity requirements might not be applicable in every instance.

# Fire detection and alarm systems —

## Part 1: General and definitions

### 1 Scope

This part of ISO 7240 provides a set of general guidelines and definitions to be used in describing the fire detection and alarm system equipment, tests and requirements in the other parts of ISO 7240.

The components that a fire detection and alarm system can have are shown in Figure 1. Item C of Figure 1 can be replaced by a sound system for emergency purposes, the components of which are shown in Figure 2.

Fire detectors can be self-contained: these are devices containing within one housing all the components, except possibly the energy source, necessary for detection of fire and giving an audible alarm.

**NOTE** Inter-connected smoke alarms complying with ISO 12239 and not connected to control and indicating equipment do not form a fire detection and alarm system as defined in this part of ISO 7240.

### 2 General guidelines

**2.1** The purpose of a fire detection and alarm system is to detect fire at the earliest practicable moment and to give an alarm so that the appropriate action can be taken (e.g. evacuation of occupants, summoning the firefighting service, triggering of extinguishing equipment, control of smoke doors, dampers and fans).

A fire alarm system may be activated by automatic detection devices or by manual operation.

**2.2** The general principles given in 2.3 to 2.7 are guidelines to the design and construction of fire detection and alarm systems.

**2.3** A fire detection and alarm system should

- detect quickly enough to fulfil its intended function;
- reliably transmit the detection signal to the control and indicating equipment and, if applicable, the fire alarm receiving station;
- translate this detection signal into a clear alarm signal that attracts the attention of the occupant in an immediate and unmistakable way;
- remain insensitive to phenomena other than those which its function is to detect;
- signal immediately and clearly any supervised fault that might jeopardize the correct performance of the system.

**2.4** A fire detection and alarm system should not

- be adversely affected by any other systems whether associated with it or not;
- be rendered partially or totally inoperative by the fire or the phenomenon which it is designed to detect before the fire or phenomenon has been detected.