
Fire detection and alarm systems —
Part 15:
Multisensor fire detectors

Systèmes de détection et d'alarme d'incendie —
Partie 15: Détecteurs d'incendie multicapteurs



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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 7240-15 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 3, *Fire detection and alarm systems*.

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*
- *Part 7: Point-type smoke detectors using scattered light, transmitted light or ionisation*
- *Part 11: Manual call points*
- *Part 14: Guidelines for drafting codes of practice for design, installation and use of fire detection and fire alarm systems in and around buildings*

Compatibility assessment of system components will be the subject of the future Part 13.

Introduction

This part of ISO 7240 for multisensor fire detectors describes requirements for different types of multisensor fire detectors.

This part of ISO 7240 is drafted on the basis of functions which are required to be provided on all multisensor fire detectors covered by this standard, and optional functions with requirements which may be provided. It is intended that the options will be used for specific applications, as recommended in application guidelines.

Each optional function is included as a separate entity, with its own set of associated requirements, in order to permit multisensor fire detectors covered by this standard with different combinations of functions to conform to this standard.

Other functions associated with fire detection and fire alarm may also be provided, even if not specified in this part of ISO 7240, if they do not jeopardize any function required by this document.

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Fire detection and alarm systems —

Part 15: Multisensor fire detectors

1 Scope

This part of ISO 7240 specifies requirements, test methods and performance criteria for point-type resettable multisensor fire detectors for use in fire detection systems installed in buildings, incorporating in one mechanical enclosure at least one smoke sensor and at least one other sensor which responds to heat, and in which the signal(s) of the smoke sensor(s) is (are) combined with the signal(s) of the heat sensor(s).

The performance of single components within a multisensor fire detector covered by this standard may not be sufficient for conformity to other standards for the single sensor.

Certain types of detectors may contain radioactive materials. The national requirements for radiation protection differ from country to country and they are not therefore specified in this standard. However, such detectors are expected to conform to the national requirements and be in line with the recommendations of the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD)¹⁾.

2 References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 209-1, *Wrought aluminium and aluminium alloys — Chemical composition and forms of products — Part 1: Chemical composition*

ISO 7240-1, *Fire detection and alarm systems — Part 1: General and definitions*

ISO 7240-5, *Fire detection and alarm systems — Part 5: Point-type heat detectors*

ISO 7240-7, *Fire detection and alarm systems — Part 7: Point-type smoke detectors using scattered light, transmitted light or ionization*

IEC 60068-1, *Environmental testing — Part 1: General and guidance*

IEC 60068-2-1, *Environmental testing — Part 2: Tests. Tests A: Cold*

IEC 60068-2-6, *Environmental testing — Part 2: Tests. Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27, *Environmental testing — Part 2: Tests. Test Ea and guidance: Shock*

1) OECD, *Recommendations for ionization smoke detectors in implementation of radiation protection standards*. Nuclear Energy Agency, Organisation for economic Co-operation and Development, Paris, France

IEC 60068-2-42, *Environmental testing — Part 2-42: Tests. Test Kc: Sulphur dioxide test for contacts and connections*

IEC 60068-2-78, *Environmental testing — Part 2-78: Tests — Test Cab: Damp heat, steady state*

EN 50130-4, *Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder and social alarm systems*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7240-1, ISO 7240-5, ISO 7240-7 and the following apply.

3.1.1

detector response

defined change of the status of a fire detector after actuation of an alarm signal

3.1.2

multisensor fire detector

detector incorporating sensors within one mechanical housing which responds to more than one physical phenomenon of fire, e.g. smoke and heat, smoke and gas or heat and gas

NOTE The mechanism for actuating alarm signals or for operating automatic fire protection equipment may be located with the detector or in another part of the system, for example at the control and indicating equipment.

3.1.3

non-volatile memory

memory elements which do not require the presence of an energy source for the retention of their contents

3.1.4

sensor response

defined change of the output signal of a sensing element

NOTE The output signal may be a response to combustion or may result from environmental influences such as temperature, wind, air pressure, electromagnetic irradiation, etc.

3.1.5

site-specific detector data

alterable data required for the detector to operate in a defined detector configuration

3.1.6

smoke-response value

A_{sr}
aerosol density in the proximity of a test specimen at the moment that it generates a reference signal in a smoke tunnel

3.1.7

temperature-response value

temperature in the proximity of a test specimen at the moment that it generates a reference signal

3.1.8

volatile memory

memory elements which require the presence of an energy source for the retention of their contents