INTERNATIONAL STANDARD

ISO 12239

Third edition
2021-11

Smoke alarms using scattered light, transmitted light or ionization

Dispositifs d'alarme de fumée fonctionnant suivant le principe de la diffusion de la lumière, de la transmission de la lumière ou de l'ionisation

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 21 *Equipment for fire protection and firefighting*, Subcommittee SC 3, *Fire detection and alarm systems.*

This third edition cancels and replaces the second edition (ISO 12239:2010), which has been technically revised.

The main changes compared to the previous edition are as follows:

— This edition recognizes the introduction of combination and multi-criteria smoke alarms: smoke alarms that within the one housing provide multiple fire sensors.

— This edition recognizes the technology for open smoke alarms: smoke alarms where the detection of smoke occurs outside the smoke alarm enclosure.

— This edition permits the inclusion of a sensor within the smoke alarm that is unrelated to fire detection, e.g. carbon monoxide sensor.

— This edition introduces new requirements for:

  a) smoke alarms that derive their main power from the mains or a mains-derived source;

  b) external power supply equipment;

  c) temporary disablement facility;

  d) smoke alarms utilizing radio frequency links;

  e) assessment of wall-mounted smoke alarms.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document for smoke alarms is drafted on the basis of functions that are to be provided on all smoke alarms covered by this document, and optional functions with requirements which may additionally 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 smoke alarms covered by this document with different combinations of functions to conform to this document.

Additional functions can also be provided, even if not specified in this document.

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IMPORTANT — Certain types of smoke alarms contain radioactive materials. The national requirements for radiation protection differ from country to country and they are not specified in this document. Such smoke alarms should, however, take into consideration the applicable national standards, which should take into consideration the recommendations of the Nuclear Energy Agency (NEA) of the Organization for Economic Co-operation and Development (OECD).

1 Scope

This document specifies requirements, test methods, performance criteria and manufacturers' instructions for smoke alarms that operate using scattered light, transmitted light or ionization, and are intended for household or similar residential applications.

For the testing of other types of smoke alarms, or smoke alarms working on different principles, this document is recommended only as guidance. Smoke alarms with special characteristics and developed for specific risks are not covered by this document.

This document allows, although it does not require, the inclusion within the smoke alarm of facilities for the following:

— visual fault condition indication;

— extended temperature-range operation;

— interconnection with other similar smoke alarms or accessories;

— temporary disablement;

— alarm silencing;

— signal frequency characteristics;

— standby power source low condition silence;

— smoke alarms with voice;

— smoke alarms using radio frequency links;

— response to slowly developing fires (drift compensation).

Where such facilities are included, this document specifies applicable requirements.

This document does not cover devices intended for incorporation in systems using separate control and indicating equipment. Such systems are specified in the ISO 7240 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *Aluminium and aluminium alloys — Chemical composition*

ISO 2919, *Radiological protection — Sealed radioactive sources — General requirements and classification*