AS 7240.7:2018

Australian STANDARD

Fire detection and alarm systems

Part 7: Point type smoke detectors using scattered light, transmitted light or ionization (ISO 7240-7:2018, MOD)

STANDARDS Australia

AS 7240.7:2018

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Preface

This Standard was prepared by the Standards Australia Committee FP-002, Fire Detection, Warning, Control and Intercom Systems, to supersede AS 7240.7—2004, *Fire detection and alarm systems, Part 7: Point-type smoke detectors using scattered light, transmitted light or ionization (ISO 7240-7:2003, MOD).*

The objective of this Standard is to specify requirements, test methods and performance criteria for point-type smoke detectors that operate using scattered light, transmitted light or ionization, for use in fire detection and alarm systems installed in buildings (refer to AS ISO 7240.1). This Standard also covers point-type smoke detectors that incorporate more than one smoke sensor operating on these principles. Additional requirements and test methods for such detectors are given in Annex N.

For the testing of other types of smoke detectors, or smoke detectors working on different principles, this Standard is only intended to be used for guidance. This Standard is not applicable to smoke detectors with special characteristics, developed for specific risks.

NOTE Certain types of detectors contain radioactive materials.

The major changes in this edition are as follows:

(a) Introduction of requirements and tests/assessment methods for a new detector technology (open detectors).

(b) Inclusion of definitions for open detectors and traditional closed detectors.

The latest ISO publication now has two levels of sensitivity category. The changes, if adopted directly, have the potential to effect currently conforming products in the Australian market. There would be insufficient time for manufacturers and suppliers to transition current product to the new ISO requirements. This potentially will reduce the products available in the market.

This modification is to amend Band 1 to permit both the current sensitivity assessment and the new classes, including currently conforming product.

This Standard is an adoption with national modifications, and has been reproduced from, ISO 7240-7:2018, *Fire detection and alarm systems — Part 7: Point-type smoke detectors using scattered light, transmitted light or ionization*. The modifications are additional requirements and are set out in Appendix ZZ, which has been added at the end of the source text.

Appendix ZZ lists the variations to ISO 7240-7:2018 for the application of this Standard in Australia.

As this document has been reproduced from an International Standard, a full point substitutes for a comma when referring to a decimal marker.

Australian Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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Contents

Preface ii

Foreword vi

Introduction vii

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 General requirements 2
- 4.1 Compliance 2
- 4.2 Response threshold value of detectors using scattered or transmitted light 3
- 4.3 Individual alarm indication 3
- 4.4 Connection of ancillary devices 3
- 4.5 Monitoring of detachable detectors 3
- 4.6 Manufacturer's adjustments 3
- 4.7 On-site adjustment of response behaviour 3
- 4.8 Protection against the ingress of foreign bodies 4
  - 4.8.1 Closed detectors 4
  - 4.8.2 Open detectors 4
- 4.9 Response to slowly developing fires 4
- 4.10 Requirements for software-controlled detectors 4
  - 4.10.1 General 4
  - 4.10.2 Software design 5
  - 4.10.3 Storage of programs and data 5

5 Tests 5
- 5.1 General 5
  - 5.1.1 Atmospheric conditions for tests 5
  - 5.1.2 Operating conditions for tests 5
  - 5.1.3 Mounting arrangements 6
  - 5.1.4 Tolerances 6
  - 5.1.5 Measurement of response threshold value 6
  - 5.1.6 Provision for tests 6
  - 5.1.7 Test schedule 7
  - 5.1.8 Test report 7
- 5.2 Repeatability 8
  - 5.2.1 Object of test 8
  - 5.2.2 Test procedure 8
  - 5.2.3 Requirements 8
- 5.3 Directional dependence 8
  - 5.3.1 Object of test 8
  - 5.3.2 Test procedure 8
  - 5.3.3 Requirements 8
- 5.4 Reproducibility 9
  - 5.4.1 Object of test 9
  - 5.4.2 Test procedure 9
  - 5.4.3 Requirements 9
- 5.5 Variation in supply parameters 9
  - 5.5.1 Object of test 9
  - 5.5.2 Test procedure 9
  - 5.5.3 Requirements 10
- 5.6 Air movement 10
  - 5.6.1 Object of test 10
  - 5.6.2 Test procedure 10
  - 5.6.3 Requirements 11

5.7 Dazzling 11
5.7.1 Object of test 11
5.7.2 Test procedure 11
5.7.3 Requirements 11
5.8 Additional tests for open detectors 12
5.8.1 Object of the test 12
5.8.2 Test procedure 12
5.9 Dry heat (operational) 12
5.9.1 Object of test 12
5.9.2 Test procedure 12
5.9.3 Requirements 13
5.10 Cold (operational) 13
5.10.1 Object of test 13
5.10.2 Test procedure 13
5.10.3 Requirements 14
5.11 Damp heat, steady state (operational) 14
5.11.1 Object of test 14
5.11.2 Test procedure 14
5.11.3 Requirements 14
5.12 Damp heat, steady state (endurance) 15
5.12.1 Object of test 15
5.12.2 Test procedure 15
5.12.3 Requirements 15
5.13 Sulfur dioxide (SO_2) corrosion (endurance) 15
5.13.1 Object of test 15
5.13.2 Test procedure 15
5.13.3 Requirements 16
5.14 Shock (operational) 16
5.14.1 Object of test 16
5.14.2 Test procedure 16
5.14.3 Requirements 17
5.15 Impact (operational) 17
5.15.1 Object of test 17
5.15.2 Test procedure 17
5.15.3 Requirements 18
5.16 Vibration, sinusoidal, (operational) 18
5.16.1 Object of test 18
5.16.2 Test procedure 18
5.16.3 Requirements 19
5.17 Vibration, sinusoidal (endurance) 19
5.17.1 Object of test 19
5.17.2 Test procedure 19
5.17.3 Requirements 20
5.18 Electromagnetic compatibility (EMC) immunity tests (operational) 20
5.19 Fire sensitivity 20
5.19.1 Object of test 20
5.19.2 Test procedure 21
5.19.3 Requirements 22

6 Test report 22

7 Marking 22

8 Data 23
8.1 Hardware documentation 23
8.2 Software documentation 23

Annex A (normative) **Smoke tunnel for response threshold value measurements 25**

Annex B (normative) **Test aerosol for response threshold value measurements 26**

Annex C (normative) **Smoke-measuring instruments** **27**
Annex D (normative) **Apparatus for dazzling test** **31**
Annex E (normative) **Apparatus for impact test** **32**
Annex F (normative) **Fire test room** **34**
Annex G (normative) **Smouldering (pyrolysis) wood fire (TF2)** **36**
Annex H (normative) **Glowing smouldering cotton fire (TF3)** **39**
Annex I (normative) **Flaming plastics (polyurethane) fire (TF4)** **41**
Annex J (normative) **Flaming liquid (*n*-heptane) fire (TF5)** **44**
Annex K (informative) **Information concerning the construction of the smoke tunnel** **47**
Annex L (informative) **Compensation for detector drift** **49**
Annex M (informative) **Information concerning the construction of the measuring ionization chamber** **53**
Annex N (normative) **Apparatus for open detector static object test** **55**
Annex O (normative) **Apparatus for testing the protection against the effect of moving objects** **56**
Bibliography **58**
Appendix ZZ (normative) **Variations to ISO 7240-7:2018 for Australia** **59**

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 on 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 the following URL: www.iso.org/iso/foreword.html.

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

This third edition cancels and replaces the second edition (ISO 7240:2011), which has been technically revised.

The main change compared to the previous edition is the introduction of requirements and tests/assessment methods for a new detector technology: open detectors. Definitions for open detectors and traditional closed detectors have been included in Clause 3.

A list of all parts in the ISO 7240 series can be found on the ISO website.

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Introduction

This document is based on a draft prepared by the European Committee for Standardization's CEN/TC 72, *Automatic fire detection systems*.

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, including corrosion, vibration, direct impact, indirect shock and electromagnetic interference. Specific tests are intended to assess the performance of the smoke detectors under such conditions.

This document is not intended to place any other restrictions on the design and construction of such detectors.

This edition of this document introduces a requirement for smoke detectors that operate on the scattered or transmitted light principle to be marked with one of two possible nominal response threshold value bands. This marking provides for a clearer choice of response values so that the risk of unwanted alarms may be decreased in installations where unfavourable environmental conditions are present.

NOTE For some test fires, smoke detectors that operate on the scattered or transmitted light principle and that have been factory set to the upper response threshold value band can fall outside one of the classification limits given in ISO/TS 7240-9.

This edition of this document introduces additional requirements for optical smoke detectors with the sensing volume(s) outside the enclosure.

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Fire detection and alarm systems

Part 7: Point type smoke detectors using scattered light, transmitted light or ionization (ISO 7240-7:2018, MOD)

1 Scope

This document specifies requirements, test methods and performance criteria for point-type smoke detectors that operate using scattered light, transmitted light or ionization, for use in fire detection and alarm systems installed in buildings (see ISO 7240-1). This document also covers point-type smoke detectors that incorporate more than one smoke sensor operating on these principles. Additional requirements and test methods for such detectors are given in Annex N.

For the testing of other types of smoke detectors, or smoke detectors working on different principles, this document is only intended to be used for guidance. This document is not applicable to smoke detectors with special characteristics, developed for specific risks.

NOTE Certain types of detectors contain radioactive materials.

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 209:2007, *Aluminium and aluminium alloys — Chemical composition*

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

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

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

IEC 60068-2-2, *Environmental testing — Part 2-2: Tests — Tests B: Dry heat*

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

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

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*

IEC 62599-2, *Alarm systems — Part 2: Electromagnetic compatibility — Immunity requirements for components of fire and security alarm systems*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

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