



## **Fire detection and alarm systems**

### **Part 22: Smoke-detection equipment for ducts (ISO 7240-22:2017, MOD)**

**STANDARDS**  
Australia



AS 7240.22:2018

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- Association of Hydraulic Services Consultants Australia
- Australasian Fire and Emergency Service Authorities Council
- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Institute of Building Surveyors
- CSIRO
- Deafness Forum of Australia
- Department of Health and Human Services (VIC)
- Engineers Australia
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### **Part 22: Smoke-detection equipment for ducts (ISO 7240-22:2017, MOD)**

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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 7240.22—2008, *Fire detection and alarm systems, Part 22: Smoke-detection equipment for ducts (ISO 7240-22:2007, MOD)*.

The objective of this Standard is to specify requirements, test methods and performance criteria for smoke-detection equipment for ducts (SDED) for use in fire detection and alarm systems installed in buildings (refer to AS ISO 7240.1).

The SDED samples the air from a duct and detects smoke in the sample.

NOTE A common method of operation is to use differential pressure arising from airflow in the duct.

The SDED can use smoke detectors complying with AS 7240.7 or other detectors complying with tests specified in this Standard.

This Standard is an adoption with national modifications, and has been reproduced from, ISO 7240-22:2017, *Fire detection and alarm systems — Part 22: Smoke-detection equipment for ducts*. 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 7240-22:2017 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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## 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](http://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](http://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](http://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 second edition cancels and replaces the first edition (ISO 7240-22:2007), which has been technically revised.

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

- in [5.16](#) (electromagnetic compatibility immunity tests), EN 50130-4 has been replaced by IEC 62599-2;
- marking has been moved to a new [Clause 7](#);
- data and software requirements have been moved to [Clause 8](#).

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

## Introduction

Smoke-detection equipment for ducts (SDED) is used as part of a fire detection system to sample the environment within air ducts of a building. Detection of smoke releases a signal to the connected control and indicating equipment and can be used as a signal to an air-handling system to prevent the spread of smoke within the building.

SDED is required to function satisfactorily not only in the event of a 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 the SDED under such conditions.

The performance of SDED is assessed from results obtained in specific tests. This document is not intended to place any other restrictions on the design and construction of such equipment.

# Australian Standard®

## Fire detection and alarm systems

### Part 22: Smoke-detection equipment for ducts (ISO 7240-22:2017, MOD)

#### 1 Scope

This document specifies requirements, test methods and performance criteria for smoke-detection equipment for ducts (SDED) for use in fire detection and alarm systems installed in buildings (see ISO 7240-1).

The SDED samples the air from a duct and detects smoke in the sample.

NOTE 1 A common method of operation is to use differential pressure arising from airflow in the duct.

The SDED can use smoke detectors complying with ISO 7240-7 or other detectors complying with tests specified in this document.

A common application for SDED is to detect visible smoke, for which detectors using scattered light or transmitted light can be more suitable. However, requirements for detectors using ionization are also included in this document for use in applications where detection of less visible fire aerosols is desired.

For the testing of other types of smoke detectors or smoke detectors working on different principles, this document can be used for guidance. Smoke detectors with special characteristics, developed for specific risks, are not covered.

NOTE 2 Certain types of detectors contain radioactive materials. The national requirements for radiation protection differ from country to country and are not specified in this document.

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

ISO 7240-7:2011, *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 60068-2-2, *Environmental testing — Part 2: Tests. Tests B: Dry heat*

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

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

IEC 60068-2-42, *Environmental testing — Part 2-42: Tests. Tests Kc: Sulphur dioxide tests 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*