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Fire detection and fire alarms systems - Part 27: Duct smoke detectors

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Fire detection and fire alarms systems - Part 27: Duct smoke detectorsSystèmes de détection et d'alarme incendie - Partie 27 :
DéTECTEURS de fumées dans les conduitsBrandmeldeanlagen - Teil 27: Rauchmelder für die
Überwachung von Lüftungsleitungen

This European Standard was approved by CEN on 11 January 2015.

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Foreword

This document (EN 54-27:2015) has been prepared by Technical Committee CEN/TC 72 “Fire detection and fire alarm systems”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2015 and conflicting national standards shall be withdrawn at the latest by March 2019.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports basic requirements of EU Regulation 305/2011.

For relationship with EU Regulation(s), see informative Annex ZA, which is an integral part of this document.

Information on the relationship between this European Standard and other standards of the EN 54 series is given in EN 54-1.

EN 54, *Fire detection and fire alarm systems*, consists of the following parts:

- *Part 1: Introduction;*
- *Part 2: Control and indicating equipment;*
- *Part 3: Fire alarm devices — Sounders;*
- *Part 4: Power supply equipment;*
- *Part 5: Heat detectors — Point detectors;*
- *Part 7: Smoke detectors — Point detectors using scattered light, transmitted light or ionization;*
- *Part 10: Flame detector — Point detectors;*
- *Part 11: Manual call points;*
- *Part 12: Smoke detectors — Line detectors using an optical light beam;*
- *Part 13: Compatibility assessment of system components;*
- *Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance [CEN Technical specification];*
- *Part 16: Voice alarm control and indicating equipment;*
- *Part 17: Short circuit isolators;*
- *Part 18: Input/output devices;*
- *Part 20: Aspirating smoke detectors;*
- *Part 21: Alarm transmission and fault warning routing equipment;*

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- *Part 22: Resettable line type heat detectors;*
- *Part 23 Fire alarm devices — Visual alarm devices;*
- *Part 24: Components of voice alarm systems — Loudspeakers;*
- *Part 25: Components using radio links;*
- *Part 26: Point fire detectors using carbon monoxide sensors;*
- *Part 27: Duct smoke detectors [the present document];*
- *Part 28: Non-resettable line type heat detectors;*
- *Part 29: Multi-sensor fire detectors — Point detectors using a combination of smoke and heat sensors;*
- *Part 30: Multi-sensor fire detectors — Point detectors using a combination of carbon monoxide and heat sensors;*
- *Part 31: Multi-sensor fire detectors — Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors.*

NOTE This list includes standards that are in preparation and other standards may be added. For current status of published standards refer to www.cen.eu.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Duct smoke detectors (DSD) are used as part of a fire detection and fire alarm system or as a stand-alone actuator for a fire protection system to sample the air within air ducts of a building. Detection of smoke can be used as 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.

A DSD is required to function satisfactorily not only in the event of a fire, but also in the 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 DSD under such conditions.

The performance of DSD 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.

An example for a stand-alone system is given in Figure K.1. The configuration of a fire detection and fire alarm system is given in EN 54-1.

Annex L gives information on power supply. These requirements are system requirements or requirements on other components respectively and do not concern the product requirements of the DSD.

1 Scope

This European Standard specifies requirements, test methods and performance criteria for fire detectors which detect smoke in air ducts in buildings as a part of a fire detection and fire alarm system or as an actuator for a fire protection system.

Duct smoke detectors with special characteristics and developed for specific risks are not covered by this document.

NOTE Certain types of detector contain radioactive materials. The national requirements for radiation protection differ from one member state to another and are not specified in this standard.

2 Normative references

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

EN 54-1:2011, *Fire detection and fire alarm systems - Part 1: Introduction*

EN 54-7:2000,¹⁾ *Fire detection and fire alarm systems - Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization*

EN 54-13:2005, *Fire detection and fire alarm systems - Part 13: Compatibility assessment of system components*

EN 54-20:2006,²⁾ *Fire detection and fire alarm systems - Part 20: Aspirating smoke detectors*

EN 50130-4:2011, *Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems*

EN 60068-1:2014, *Environmental testing - Part 1: General and guidance (IEC 60068-1:1988)*

EN 60068-2-1:2007, *Environmental testing - Part 2-1: Tests - Test A: Cold (IEC 60068-2-1:2007)*

EN 60068-2-2:2007, *Environmental testing - Part 2-2: Tests - Test B: Dry heat (IEC 60068-2-2:2007)*

EN 60068-2-6:2008, *Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)(IEC 60068-2-6:2007)*

EN 60068-2-27:2009, *Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock (IEC 60068-2-27:2008)*

EN 60068-2-42:2003, *Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections (IEC 60068-2-42:2003)*

EN 60068-2-75:2014, *Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests (IEC 60068-2-75:2014)*

1) EN 54-7:2000 is currently impacted by the stand-alone amendments EN 54-7:2000/A1:2002 and EN 54-7:2000/A2:2006.

2) EN 54-20:2006 is currently impacted by the corrigendum EN 54-20:2006/AC:2008.

EN 60068-2-78:2013, *Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state (IEC 60068-2-78:2012)*

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