



BSI Standards Publication

Fire detection and fire alarm systems

Part 3: Fire alarm devices – Sounders

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National foreword

This British Standard is the UK implementation of EN 54-3:2014+A1:2019. It supersedes BS EN 54-3:2014, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee FSH/12/5, Alarm devices, voice alarm evacuation sub-systems and emergency voice communications.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Fire detection and fire alarm systems - Part 3: Fire alarm devices - Sounders

Systèmes de détection et d'alarme incendie - Partie 3 :
Dispositifs sonores d'alarme feu

Brandmeldeanlagen - Teil 3: Feueralarmeinrichtungen
Akustische Signalgeber

This European Standard was approved by CEN on 8 May 2014 and includes Amendment 1 approved by CEN on 14 October 2018.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 54-3:2014+A1:2019) 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of an identical text or by endorsement, at the latest by August 2019, and conflicting national standards shall be withdrawn at the latest by March 2022.

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

This document supersedes \square_{A1} EN 54-3:2014 \square_{A1} .

This document includes Amendment 1 approved by CEN on 14 October 2018.

The start and finish of text introduced or altered by amendment is indicated in the text by tags \square_{A1} \square_{A1} .

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

\square_{A1} EN 54-3:2001 \square_{A1} has been revised so as to align with the second answer of CEN/TC 72 to Mandate M/109. \square_{A1} EN 54-3:2014 \square_{A1} includes new clauses and annexes as follows:

- Requirements for software controlled devices (5.2.8);
- Clause 6 Assessment and verification of constancy of performance (AVCP);
- Clause 7 Classification and designation;
- Clause 8 Marking, labelling and packaging;
- Annex C Data supplied with sounders;
- Annex D (informative) Sound patterns used in some European countries;
- Annex E (informative) Comparison of flammability test requirements in various standards.

The previous Annex C dealt with the requirements and test methods for voice sounders. The content of this annex has been integrated in the main body of the standard, specifically under 4.3.3, 4.3.4, 4.3.5, 5.3.3, 5.3.4 and 5.3.5. In addition, Annex ZA has been revised to align with the Construction Products Regulation (CPR).

\square_{A1} Amendment 1 to EN 54-3:2014 corrects some of the errors and clarifies some of the points. \square_{A1}

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

- *Part 1: Introduction*
- *Part 2: Control and indicating equipment*

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- *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 detector using an optical light beam*
- *Part 13: Compatibility assessment of system components*
- *Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance*
- *Part 15: Point detectors using a combination of detected phenomena*
- *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 routine equipment*
- *Part 22: Line-type heat detectors*
- *Part 23: Fire alarm devices – Visual alarms*
- *Part 24: Components of voice alarm systems – Loudspeakers*
- *Part 25: Components using radio links and system requirements*
- *Part 26: Carbon monoxide detectors – Point detectors*
- *Part 27: Duct smoke detectors*
- *Part 28: Non-resettable (digital) 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 detector – Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors*
- *Part 32: Guidelines for the planning, design, installation, commissioning, use and maintenance of voice alarm systems*

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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 organisations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The purpose of a fire alarm sounder is to warn person(s) within, or in the vicinity of, a building of the occurrence of a fire emergency situation in order to enable such a person(s) to take appropriate measures.

This European Standard recognizes that the exact nature of the sound requirements, i.e. its frequency range, temporal pattern and output level will vary according to the nature of the installation, the type of risk present and appropriate measures to be taken, the type of signals used by other non-emergency alarms (see, for example, EN ISO 7731) and national differences in custom and practice. The resulting standard specifies, therefore, a common method for the testing of the operational performance of sounders against the specification declared by the manufacturer rather than imposing common requirements.

In some European countries, specific frequencies of sound and sound patterns are used. These may be given in national codes or standards (see Annex D). Attention is drawn to national safety regulations which may specify maximum safe sound pressure level received by occupants of a building.

Attention is also drawn to ISO 8201:1987, *Acoustics – Audible emergency evacuation signal*, the international standard which specifies the temporal pattern and the required sound pressure level of an audible emergency evacuation signal.

This European Standard gives common requirements for sounders as well as for their performance under climatic, mechanical and electrical interference conditions which are likely to occur in the service environment. This European Standard covers sounders for either an indoor or an outdoor application environment category.

In fire detection and fire alarm systems, voice sounders are used as alarm devices for warning the occupants of a building of the occurrence of a fire risk, using a combination of an attention-drawing signal and dedicated voice message(s). The requirements, test methods and performance criteria specified in this standard for sounders are also applicable to voice sounders. Additional requirements, test methods and performance criteria specific to voice sounders are also incorporated.

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1 Scope

This European Standard specifies the requirements, test methods and performance criteria for fire alarm sounders, including voice sounders, in a fixed installation intended to signal an audible warning between the fire detection and fire alarm systems and the occupants of a building (see EN 54-1:2011).

This European Standard provides for the assessment and verification of constancy of performance (AVCP) of fire alarm sounders to this EN.

This European Standard is not intended to cover:

- a) loudspeaker type devices primarily intended for emitting emergency voice messages that are generated from an external audio source;
- b) supervisory sounders, for example, within the control and indicating equipment.

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 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 60068-1:1994, *Environmental testing — Part 1: General and guidance (IEC 60068-1:1988 + Corrigendum 1988 + A1:1992)*

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 60068-2-30:2005, *Environmental testing — Part 2-30: Tests — Test Db: Damp heat, cyclic (12 h + 12 h cycle) (IEC 60068-2-30:2005)*

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 60068-2-75:1997, *Environmental testing — Part 2-75: Tests — Test Eh: Hammer tests (IEC 60068-2-75:1997)*

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

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*