

STN	Elektrická požiarňa signalizácia Časť 3: Zariadenia akustickej poplachovej signalizácie požiaru	STN EN 54-3+A1 92 0404
------------	--	--

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/19

Obsahuje: EN 54-3:2014+A1:2019

Oznámením tejto normy sa od 31.03.2022 ruší
STN EN 54-3 (92 0404) z apríla 2015

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 54-3:2014+A1

March 2019

ICS 13.220.20

Supersedes EN 54-3:2014

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.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	5
Introduction	8
1 Scope	9
2 Normative references	9
3 Terms, definitions and abbreviations	10
3.1 Definitions	10
3.2 Abbreviations	12
4 Requirements	12
4.1 Compliance	12
4.2 Operational reliability.....	12
4.2.1 Duration of operation.....	12
4.2.2 Provision for external conductors	12
4.2.3 Flammability of materials.....	12
4.2.4 Enclosure protection.....	13
4.2.5 Access	13
4.2.6 Manufacturer's adjustment.....	13
4.2.7 On-site adjustment of the operation mode.....	13
4.2.8 Software controlled sounders	14
4.3 Performance parameters under fire conditions.....	15
4.3.1 Sound pressure level.....	15
4.3.2 Frequencies and sound pattern	15
4.3.3 Synchronisation	15
4.3.4 Performance of voice sounders	16
4.3.5 Voice sounders sequence timing	16
4.4 Durability of performance parameters under fire conditions	16
4.4.1 Temperature resistance	16
4.4.2 Humidity resistance	16
4.4.3 Shock and vibration resistance.....	17
4.4.4 Corrosion resistance	17
4.4.5 Electrical stability	17
5 Testing, assessment and sampling methods	17
5.1 General.....	17
5.1.1 Atmospheric conditions for tests	17
5.1.2 Operating conditions for tests.....	18
5.1.3 Mounting arrangements	18
5.1.4 Tolerances	18
5.1.5 Provision for tests.....	18
5.1.6 Test schedule	19
5.1.7 Reproducibility.....	20
5.2 Operational reliability.....	21
5.2.1 Duration of operation.....	21
5.2.2 Provision for external conductors	21
5.2.3 Flammability of materials.....	21
5.2.4 Enclosure protection.....	21
5.2.5 Access	23

5.2.6	Manufacturer's adjustments.....	23
5.2.7	On site adjustments of the operating mode	23
5.2.8	Requirements for software controlled devices	23
5.3	Performance parameters under fire conditions	23
5.3.1	Sound pressure level	23
5.3.2	Frequencies and sound patterns.....	24
5.3.3	Synchronisation	24
5.3.4	Performance of voice sounders	25
5.3.5	Voice sounder sequence timing.....	26
5.4	Durability of performance parameters under fire conditions.....	27
5.4.1	Heat resistance	27
5.4.2	Humidity resistance.....	30
5.4.3	Shock and vibration resistance	32
5.4.4	Corrosion resistance, SO ₂ corrosion (endurance)	36
5.4.5	Electrical stability	37
6	Assessment and verification of constancy of performance (AVCP).....	38
6.1	General	38
6.2	Type testing	38
6.2.1	General	38
6.2.2	Test samples, testing and compliance criteria.....	39
6.2.3	Test reports	39
6.3	Factory production control (FPC).....	39
6.3.1	General	39
6.3.2	Requirements.....	40
6.3.3	Product specific requirements	42
6.3.4	Initial inspection of factory and FPC.....	43
6.3.5	Continuous surveillance of FPC	43
6.3.6	Procedure for modifications.....	44
6.3.7	One-off products, pre-production products, (e.g. prototypes) and products produced in very low quantities.....	44
7	Classification and designation	44
8	Marking, labelling and packaging.....	44
Annex A	(normative) $\boxed{A_1}$ Sound pressure level measurement for fire alarm sounders $\boxed{A_1}$	46
A.1	General	46
A.2	Mounting arrangements.....	46
A.3	Instrumentation.....	46
A.4	Background noise level	46
A.5	Measurement of sound pressure level.....	46
Annex B	(normative) Comparative sound pressure level test during environmental conditioning.....	51
B.1	General	51
B.2	Test chamber.....	51
B.2.1	Size	51
B.2.2	Shape	51
B.2.3	Rigidity	52
B.2.4	Surface treatment.....	52
B.3	Mounting arrangements.....	52
B.4	Instrumentation.....	52
B.5	Background noise level	52
B.6	Test procedure	52
B.6.1	Number and positioning of microphones	52

EN 54-3:2014+A1:2019 (E)

B.6.2	Measurement of sound pressure level	53
Annex C	(informative) Data supplied with sounders	56
Annex D	(informative) Sound patterns used in some European countries.....	57
D.1	Introduction	57
D.2	Standards references.....	57
D.3	Information on sound patterns.....	58
D.3.1	Introduction	58
Annex E	(informative) Comparison of flammability test requirements in various standards	61
E.1	Introduction	61
E.2	Relevant standards.....	61
E.3	Vertical burning tests	61
E.4	Horizontal burning tests.....	62
Annex ZA	(informative) Relationship of this European Standard with Regulation (EU)	
	No.305/2011.....	64
Bibliography		67

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 A1 EN 54-3:2014 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 A1 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.

A1 EN 54-3:2001 A1 has been revised so as to align with the second answer of CEN/TC 72 to Mandate M/109. A1 EN 54-3:2014 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).

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

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

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

EN 54-3:2014+A1:2019 (E)

- *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*

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.

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)*

EN 54-3:2014+A1:2019 (E)

EN 60529:1991/A1:2000, *Degrees of protection provided by enclosures (IP Code)*
(IEC 60529:1989/A1:1999)

EN 60529:1991/A2:2013, *Degrees of protection provided by enclosures (IP Code)*
(IEC 60529:1989/A2:2013)

EN 60695-11-10:2013, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods* (IEC 60695-11-10:2013)

EN 60695-11-20:2015, *Fire hazard testing — Part 11-20: Test flames — 500 W flame test methods*
(IEC 60695-11-20:2015)

EN 61672-1:2003, *Electroacoustics — Sound level meters — Part 1: Specifications* (IEC 61672-1:2002)

koniec náhľadu – text ďalej pokračuje v platenej verzii STN