SLOVENSKI STANDARD
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Sistemi za odkrivanje in javljanje požara - 1. del: Uvod

Fire detection and fire alarm systems - Part 1: Introduction

Brandmeldeanlagen - Teil 1: Einleitung

Systèmes de détection et d'alarme incendie - Partie 1 : Introduction

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13.220.20	Požarna zaščita	Fire protection
13.320	Alarmni in opozorilni sistemi	Alarm and warning systems

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English Version

Fire detection and fire alarm systems - Part 1: Introduction

Systèmes de détection et d'alarme incendie - Partie 1 : Introduction

Brandmeldeanlagen - Teil 1: Einleitung

This European Standard was approved by CEN on 23 May 2021.

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 54-1:2021) 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of an identical text or by endorsement, at the latest by December 2021, and conflicting national standards shall be withdrawn at the latest by December 2021.

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 EN 54-1:2011.

The main changes compared to the previous edition are listed below:

a) addition of further terms;

b) deletion of Section 5 (Compliance);

c) addition of informative Annex B with examples of distributed CIE, distributed VACIE and network of CIEs;

d) editorial changes.

EN 54, *Fire detection and fire alarm systems*, is currently composed 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 heat detectors*

— *Part 7: Smoke detectors — Point smoke detectors using scattered light, transmitted light or ionization*

— *Part 10: Flame detectors — Point detectors*

— *Part 11: Manual call points*

— *Part 12: Smoke detectors — Line detectors using an optical light beam*

— *Part 13: Compatibility and connectability assessment of system components*

— *Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance* (CEN/TS 54-14)

— *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*

— *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: Carbon monoxide detectors — Point detectors*

— *Part 27: Duct smoke detectors*

— *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*

— *Part 32: Guidelines for the planning, design, installation, commissioning, use and maintenance of voice alarm systems* (CEN/TS 54-32)

For the current status of published standards refer to httpss://www.cen.e.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document gives the necessary information for the intended use of the series of EN 54 standards. The EN 54 series applies to fire detection and fire alarm systems for buildings and civil engineering works composed of several components that communicate for the purpose of detecting fire at the earliest practicable moment, and:

— to give audible and/or visible signals to the occupants of the building who might be at risk from a fire;

— to provide remote fire alarms to organizations having authority to take care of buildings and their environment;

— to give signals to initiate, in the event of a fire, the operation of other fire protection and equipment/systems.

The EN 54 series specifies:

— product characteristics, test methods and performance criteria against which the effectiveness and reliability of the component parts of fire detection and fire alarm systems can be assessed and declared;

— requirements for compatibility and connectability of components when combined into a system;

— guidelines for application of fire detection and fire alarm systems in buildings and civil engineering works.

The EN 54 series may be used for other applications e.g. mines and ships, but one should consider the specific nature of each application before use. Additional performance and environmental tests might be necessary. This does not preclude the manufacture or use of systems having special characteristics suitable for the protection of specific risks against specific hazards.

As this revision of the standard includes terms and definitions collated from specific parts of EN 54, there can now be some duplication of terms and definitions in other parts. This situation will be corrected in future revisions of the different parts of EN 54 so that definitions are defined only once and are applied consistently throughout the series.

The functions of a fire detection and fire alarm system may be grouped to form subsystems such as a fire detection subsystem and a voice alarm subsystem.

As the system is required to function satisfactorily, not only under fire conditions, but also when exposed to conditions likely to be met in practice, the tests specified in the EN 54 series are intended to assess the performance of the components and the system under such conditions.

The performance of components is assessed from the results obtained in the specified tests. This performance does not ensure that this component will necessarily function correctly when connected with another component also conforming to the relevant part of EN 54 (e.g. control and indicating equipment with a fire detector), unless both components have been assessed together in accordance with EN 54-13.

1 Scope

This document defines the terms and definitions that are used throughout the EN 54 series of standards. It gives the principles on which each part of the series has been based and describes the functions carried out by the components of a fire detection and fire alarm system.

This document applies to fire detection and fire alarm systems for buildings and civil engineering works.

This document does not apply to smoke alarm devices which are covered by EN 14604.

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.

EN 54 (all parts), *Fire detection and fire alarm systems*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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

3.1
access level
one of several states of equipment in which selected

— controls can be operated;

— manual operations can be carried out;

— indications are visible; and/or

— information can be obtained and changed.

[SOURCE: ISO 7240-1:2014, 2.1.3, modified]

3.2
addressable device
device that can be individually identified at the CIE

3.3
aerosol tunnel
smoke tunnel
test arrangement, producing a well-controlled increase of an artificial aerosol for the purpose of a reproducible assessment of the response behaviour of a smoke detector

3.4
ancillary equipment
equipment which supports fire related functions not currently defined in EN 54

3.5
aspirating smoke detector
smoke detector, in which air and aerosols are drawn through a sampling device and carried to one or more smoke sensing elements by an integral aspirator (e.g. fan or pump)

Note 1 to entry: Each smoke-sensing element may contain more than one sensor exposed to the same smoke sample.

3.6
building management system
facilities used to monitor, control and manage equipment installed in a building for comfort, safety and/or security purposes

3.7
combustion gas detector
fire detector sensitive to gaseous products of combustion and/or thermal decomposition

EXAMPLE Carbon monoxide fire detector.

3.8
commissioning
activating and testing of the system according to the design

[SOURCE: EN 16763:2017, 2.12]

3.9
compatibility
ability of a component of the system to operate with another component of the same system

3.10
competent person
individual who, in relation to the work undertaken, has the necessary knowledge, skill, tools and experience to complete the defined task satisfactorily and safely

3.11
component
device contained in one housing (or cabinet), that performs a function, several functions or part of a function of a fire detection and fire alarm system

EXAMPLE Fire detectors, alarm devices and control and indicating equipment are components of a fire detection and fire alarm system.

Note 1 to entry: Where a function is distributed in separate housings each housing is considered as a separate component.

3.12
control and indicating equipment
CIE
component of a fire detection and fire alarm system through which other components may be supplied with power and which is used:

a) to receive the signals from the connected detectors and/or manual call points;

b) to determine whether these signals correspond to a fire alarm condition;

c) to indicate any such fire alarm condition audibly and visually;

d) to indicate the location of the danger.

Note 1 to entry: CIE is used to monitor correct functioning of the system and give audible and visible warning of any faults (e.g. short circuit, line breakage, or fault in the power supply); and, if necessary is able to pass on the fault warning through fault warning routing equipment to a fault warning receiving centre.

Note 2 to entry: If necessary CIE is able to pass on the fire alarm signal; for example:

— to audible or visible fire alarm devices or to a voice alarm system;

— to the fire alarm routing function to a fire alarm receiving centre;

— to the control function for fire protection equipment or systems;

— to ancillary equipment (e.g. fire brigade panel).

3.13
detachable detector
detector which is designed for removal of the head from its base

Note 1 to entry: The use of detachable detectors can assist during maintenance without disconnecting the fixed wiring.

3.14
distributed CIE
single CIE which is contained in cabinets, which are physically separated from each other

Note 1 to entry: The requirements are given in EN 54-2.

Note 2 to entry: See Annex B for examples.

3.15
distributed VACIE
single VACIE which is contained in cabinets, which are physically separated from each other

Note 1 to entry: The requirements are given in EN 54-16.

Note 2 to entry: See Annex B for examples.

3.16
duct smoke detector
detector that monitors the air in an air duct to detect smoke

3.17
earth fault
unwanted connection between earth potential and any part of the CIE or VACIE, transmission paths to the CIE or VACIE, or transmission paths between parts of the CIE or VACIE

3.18
emergency microphone
microphone for use by the fire service or trained operators as part of a voice alarm system

3.19
fault warning receiving centre
centre from which the necessary corrective measures can be initiated on receipt of fault signals

3.20
fault warning routing equipment
equipment which routes a fault warning signal to a fault warning receiving centre

3.21
fire alarm device
component of a fire alarm system, not incorporated in the control and indicating equipment, which is used for warning persons

EXAMPLE Fire alarm sounders, visual alarm devices, voice alarm loudspeakers, tactile alarm devices.

3.22
fire alarm receiving centre

centre from which the necessary fire protection or fire-fighting measures can be initiated on receipt of a fire alarm signal

3.23
fire alarm routing equipment
equipment which routes an alarm signal from a control and indicating equipment to a fire alarm receiving centre

3.24
fire alarm sounder
sounder
device able to generate an audible fire alarm signal for warning persons

3.25
fire brigade panel
device connected to the CIE specifically designed for use by the fire brigade

EXAMPLE Fire brigade control panel, fire brigade indicator panel.

3.26
fire detection and fire alarm system
FDAS
group of components including the control and indicating equipment which when arranged in (a) specific configuration(s) is capable of detecting and indicating a fire, and giving signals for appropriate action