



# SLOVENSKI STANDARD

## SIST EN 54-1:1996

01-maj-1996

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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

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

Ta slovenski standard je istoveten z: EN 54-1:1996

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#### **ICS:**

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

**SIST EN 54-1:1996**

**en**

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EUROPEAN STANDARD

EN 54-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 1996

ICS 13.220.20

Supersedes EN 54-1:1976

Descriptors: fire equipment, fire detection systems, automatic equipment, specifications, definitions

English version

## Fire detection and fire alarm systems - Part 1: Introduction

Systemes de détection et d'alarme incendie - Brandmeldeanlagen - Teil 1: Einleitung  
Partie 1: Introduction

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This European Standard was approved by CEN on 1996-01-14. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

# CEN

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 72 "Automatic fire detection systems", the secretariat of which is held by BSI.

This European Standard supersedes EN 54-1:1976.

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 1996, and conflicting national standards shall be withdrawn at the latest by September 1996.

This standard has been prepared in cooperation with the CEA (Comité Européen des Assurances) and with EURALARM (Association of European Manufacturers of Fire and Intruder Alarm Systems).

The significant differences from EN 54-1:1976 are:

- a change in the general title;
- a change in the scope to include coverage of the way in which components are installed and used;
- changes to the format and structure of the series;
- extension to cover new parts.

NOTE: The current and proposed future structures of the EN 54 series are given in annex A.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## 0 Introduction

The function of a fire detection system is to detect fire at the earliest practicable moment, and to give signals and indications so that appropriate action can be taken.

The function of a fire alarm system is to give audible and/or visible signals to occupants of the building who may be at risk from a fire.

Fire detection and fire alarm functions may be combined in a single system.

## 1 Scope

1.1 This series of European Standards specifies:

- requirements, 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;
- requirements and test methods against which the ability of components to be combined into an effective system can be assessed;
- guidelines for the incorporation and use of fire detection and fire alarm systems into buildings or other construction works.

1.2 This series of standards applies to fire detection and fire alarm systems for buildings. It may also be used as a basis for the assessment of components of systems for other purposes, e.g. mines, ships; however, additional testing may be required. It does not preclude the manufacture or use of systems having special characteristics suitable for the protection of specified risks.

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

1.4 The performance of components is assessed from the results obtained in the specified tests and from their ability to perform the required functions. This standard is not intended to place restrictions on the design or construction of components other than those necessary for the performance of desired functions.

1.5 Where appropriate the standards may be applied to the detection part of extinguishing systems (with the exception of sprinkler heads) although the sensitivity requirements may not be applicable to all cases.

1.6 The compliance of a component with the relevant part of EN 54 does not ensure that this component will necessarily function correctly when connected with another component also complying with the relevant part of EN 54 (e.g. control and indicating equipment with a fire detector), unless both components have been assessed together as satisfying the requirements for a system.

1.7 This series of standards does not cover the requirements for self-contained smoke alarms (see 3.13).

## 2 Normative references

There are no normative references in this European Standard. Other parts of EN 54 are listed in Annex A (informative).

## 3 Definitions

For the purposes of this European Standard, the following definitions apply.

NOTE 1: The list of components of fire detection and fire alarm systems is not intended to be exclusive. Definitions for other components may be added in later revisions of this European Standard or by amendment when such components are produced.

NOTE 2: Additional definitions specific to individual parts are included in those parts.

**3.1 fire detector (item A of figure 1):** A component of a fire detection system which contains at least one sensor which constantly or at frequent intervals monitors at least one suitable physical and/or chemical phenomenon associated with fire, and that provides at least one corresponding signal to the control and indicating equipment (see figure 1: item B of figure 1).

NOTE 1: The decision to give the alarm of fire or to operate automatic fire protection equipment may be made at the detector or other component of the system, for example at the control and indicating equipment.

NOTE 2: Apart from those listed and their possible combinations, other types of detectors are conceivable.

Fire detectors may be differentiated in several ways. These may include:

- the phenomenon detected (see definitions 3.1.1 to 3.1.5);
- the way in which the detector responds to the phenomenon detected (see definitions 3.1.6 to 3.1.8);
- the configuration of the detector (see definitions 3.1.9 to 3.1.11);
- the resettability of the detector (see definitions 3.1.12 to 3.1.14);
- the detachability of the detector (see definitions 3.1.15 and 3.1.16);
- the type of signal transmitted (see definitions 3.1.17 to 3.1.19).

**3.1.1 heat detector:** A detector which responds to an increase in temperature.

**3.1.2 smoke detector:** A detector sensitive to particulate products of combustion and/or pyrolysis suspended in the atmosphere (aerosols).

Smoke detectors may be subdivided as follows.

**3.1.2.1 ionization smoke detector:** A detector sensitive to combustion products capable of affecting ionization currents within the detector.

**3.1.2.2 optical smoke detector:** A detector sensitive to combustion products capable of affecting the absorption or scattering of radiation in the infra-red, visible and/or ultraviolet regions of the electromagnetic spectrum.

**3.1.3 gas detector:** A detector sensitive to gaseous products of combustion and/or thermal decomposition.

**3.1.4 flame detector:** A detector which responds to the radiation emitted by the flames from a fire.

**3.1.5 multisensor detector:** A detector which responds to more than one phenomenon of fire.

**3.1.6 static detector:** A detector which initiates an alarm when the magnitude of the measured phenomenon exceeds a certain value, for a sufficient time.

**3.1.7 differential detector:** A detector which initiates an alarm when the difference (normally small) in the magnitudes of the measured phenomenon at two or more places exceeds a certain value, for a sufficient time.

**3.1.8 rate of rise detector:** A detector which initiates an alarm when the rate of change of the measured phenomenon with time exceeds a certain value, for a sufficient time.

**3.1.9 point detector:** A detector which responds to the phenomenon sensed in the vicinity of a fixed point.

**3.1.10 multi-point detector:** A detector which responds to the phenomenon sensed in the vicinity of a number of fixed points.

**3.1.11 line detector:** A detector which responds to the phenomenon sensed in the vicinity of a continuous line.

**3.1.12 resettable detector:** A detector which, after response, may be restored from its alarm state to its normal state of readiness to detect, on cessation of the conditions which caused the response, without the renewal of any component.

A resettable detector may be further subdivided as follows.



**3.1.12.1 self-resetting detector:** A resettable detector which will automatically restore itself to its normal state of readiness to detect.

**3.1.12.2 remotely resettable detector:** A resettable detector which can be restored to its normal state of readiness to detect by an operation carried out remote from the detector.

**3.1.12.3 locally resettable detector:** A resettable detector which can be restored to its normal state of readiness to detect by a manual operation carried out at the detector.

**3.1.13 non-resettable detector (with exchangeable elements):** A detector which, after response, requires the renewal of a component or components to restore it to its normal state of readiness to detect.

**3.1.14 non-resettable detector (without exchangeable elements):** A detector which, after response, cannot be restored from its alarm state to its normal state of readiness to detect.

**3.1.15 detachable detector:** A detector which is so designed as to permit it to be easily removed from its normal operating position for maintenance and servicing purposes.

**3.1.16 non-detachable detector:** A detector in which the mounting arrangements are such that easy removal of the detector for maintenance and servicing purposes is not possible.

**3.1.17 two-state detector:** A detector which gives one of two output states relating to either 'normal' or 'fire alarm' conditions.

**3.1.18 multi-state detector:** A detector which gives one of a limited number (greater than two) of output states relating to 'normal', 'fire alarm' and other abnormal conditions.

**3.1.19 analogue detector:** A detector which gives an output signal representing the value of the sensed phenomenon.

NOTE: This may be a true analogue signal or a digitally encoded equivalent of the sensed value.

**3.2 control and indicating equipment (item B of figure 1):** A component of a fire detection and fire alarm system through which other components may be supplied with power and which:

a) is used:

- 1) to receive the signals from the connected detectors;
- 2) to determine whether these signals correspond to a fire alarm condition;