



# SLOVENSKI STANDARD

## oSIST prEN 54-2:2016

01-april-2016

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### Sistemi za odkrivanje in javljanje požara ter alarmiranje - 2. del: Oprema za kontrolo in indikacijo

Fire detection and fire alarm systems - Part 2: Control and indicating equipment

Brandmeldeanlagen - Teil 2: Brandmelderzentralen

Systèmes de détection et d'alarme incendie - Partie 2 : Équipement de contrôle et de signalisation

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#### **ICS:**

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

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**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

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**prEN 54-2**

February 2016

ICS 13.220.20

Will supersede EN 54-2:1997

English Version

## Fire detection and fire alarm systems - Part 2: Control and indicating equipment

Systèmes de détection et d'alarme incendie - Partie 2 :  
Équipement de contrôle et de signalisation

Brandmeldeanlagen - Teil 2: Brandmelderzentralen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 72.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (prEN 54-2:2015) has been prepared by Technical Committee CEN/TC 72 “Fire detection and fire alarm systems”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 54-2:1997.

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.

EN 54-2 has been revised to comply with the requirements of the CPR and to align it with CEN rules for the drafting of harmonized standards. The changes required a complete reformatting of the standard to place the requirements in Clause 4 and the test requirements in Clause 5. As a result there is direct correlation between the subclauses in Clause 4 and Clause 5. A reader may therefore compare the requirement in 4.x.y.z with its respective test in 5.x.y.z.

Normative references have been updated to reflect the current status of referenced standards and for combined CIE and PSUs this standard should be used in conjunction with EN 54-4.

CIE often have to have different features to meet national regulations or to correctly function in different types of applications and it is not always commercially acceptable to provide all of the features that might be required in every possible circumstance. EN 54-2:1997 met this by having options with requirements, but this is not allowed under current drafting conventions. To overcome this problem this standard is structured in such a way as to allow manufacturers to declare which of the requirements have been incorporated in the supplied equipment. Some requirements are essential for all CIE (Subclauses 4.2.1 and 4.3 to 4.4), in which case the standard uses the term 'shall'. But for those functions that have a more limited application the term 'may' is used. To allow this, all of the requirements relating to each optional feature are gathered together under the same clause or subclause.

Experience with EN 54:1997 showed that some of the requirements were open to misinterpretation. TC 72/WG 7 has therefore tried to rephrase the requirements very carefully to ensure that the intent of each requirement is very clear. It may be necessary to modify some equipment that was certified as compliant with the original standard, where misinterpretations have been applied. However the intention of the committee was not to introduce significant technical changes to core requirements, although some new optional features have been added to meet current practice in some applications.

In order to make the standard easier to read, abbreviations are used when referencing other functions of the fire alarm system, these are defined in Clause 3.

EN 54-13 currently contains requirements for safe operation of the fire system when partial open and partial short circuits are applied to transmission paths. This means that a compliant EN 54-2 panel might not comply with EN 54-13. This is clearly undesirable so an optional clause for this is now included in EN 54-2.

Where a minimum performance is required in part 2, for example the time to respond to a fire signal from a manual call point, it is now allowed for a manufacturer to declare a better response, so long as the equipment actually achieves the better performance. This might be required by certain national codes.

**prEN 54-2:2015 (E)**

As with EN 54-2:1997 annexes are used to deal with specific subjects, informative annexes give information which is intended to help the reader understand the objectives of the standards. Some annexes, e.g Annex ZA are required to comply with the CPR.

It is important not to read into the standard things which are not there. For example the audible indication is not intended to be the same as the output to C. The current structure of the standard should make this more clear because all of the requirements for a specific option are contained in the same section, under the same heading in the standard.

Some clarification has been made to the requirements relating to a System Fault. This is a special type of fault where the requirements are different to general faults, particularly with respect to entering the fault warning condition.

The test requirements for environmental tests now refer to EN 50130-5, and the format of EMC test requirements referring to EN 50130-4 are now treated in a similar way, that is each test type is separately specified.

Some changes have been made to the display requirements for disablements to addressable alarm devices, output to C. This is to correct an error that was unintentionally introduced in a previous amendment.

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 detectors — Point detectors;*
- *Part 11: Manual call points;*
- *Part 12: Smoke detectors — Line detectors using an optical 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 alarms 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 [currently at voting stage];
- 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: Planning, design, installation, commissioning, use and maintenance of voice alarm systems [CEN Technical Specification].

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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](http://www.cen.eu).

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## Introduction

This part of EN 54 is drafted on the basis of a set of core requirements for operational reliability (under 4.2.1), plus a number of free-standing additional requirements for operational reliability (under 4.2.2 to 4.2.16). It is expected that the core requirements under 4.2.1 would apply to all control and indicating equipment, together with the requirements for durability under 4.3 and 4.4. Each set of additional requirements may be separately provided for use in specific applications, as recommended in application guidelines, in order to permit control and indicating equipment with many different combinations of functions to comply with this draft European Standard.

Other functions associated with fire detection and fire alarm may also be provided, even if not specified in this draft European Standard.

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## 1 Scope

This draft European Standard specifies requirements, methods of test, and performance criteria for control and indicating equipment (CIE) (see EN 54-1:2011, Figure 1, function B) for use in fire detection and fire alarm systems installed in and around buildings.

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

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

EN 54-4:1997<sup>1)</sup>, *Fire detection and fire alarm systems — Part 4: Power supply equipment*

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 50130-5:2011, *Alarm systems — Part 5: Environmental test methods*

EN 60529<sup>2)</sup>, *Degrees of protection provided by enclosures (IP code) (IEC 60529)*

EN 60721-3-3, *Classification of environmental conditions — Part 3: Classification of groups of environmental parameters and their severities — Section 3: Stationary use at weatherprotected locations (IEC 60721-3-3)*

## 3 Terms, definitions and abbreviations

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 54-1:2011 and the following apply.

#### 3.1.1

##### **access level**

state of the CIE at which selected controls may be operated, or indications viewed (see Annex B)

#### 3.1.2

##### **addressable device**

device that can be individually identified at the CIE

#### 3.1.3

##### **information display**

visible indicator that is capable of giving information consisting of text, numeric characters, graphical symbols or any combination thereof

#### 3.1.4

##### **confirmation alarm signal**

signal from a fire detector or manual call point which terminates a first alarm state

1) EN 54-4:1997 is currently impacted by EN 54-4:1997/A1:2002 and EN 54-4:1997/A2:2006.

2) EN 60529:1991 is currently impacted by EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

**prEN 54-2:2015 (E)****3.1.5****detachable component**

component which comprises two or more parts where parts may be removed from the fixed part connected to the transmission path without tools

**3.1.6****disabled condition**

functional condition when the disablement of functions is indicated

**3.1.7****earth fault**

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

**3.1.8****fault warning condition,**

functional condition when a fault is indicated

**3.1.9****field**

sub-division of a window

**3.1.10****fire alarm condition**

functional condition when a fire alarm is indicated

**3.1.11****first alarm signal**

signal from a fire detector which is interpreted as a fire alarm, but following which the CIE enters a first alarm state

**3.1.12****first alarm state**

state of the CIE following the receipt of a first alarm signal during which functions of the CIE may be inhibited

**3.1.13****functional condition**

state of the CIE characterized by indication(s)

**3.1.14****indicator**

device which can change its state to give information

**3.1.15****quiescent condition**

functional condition when the CIE is powered and fully operational and no other functional condition is indicated

**3.1.16****module**

part of the program that fulfils specified functions

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which is interpreted as a fire alarm, but following which the CIE enters a first alarm state  
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**3.1.17****non-volatile memory**

memory elements that do not require the presence of an energy source for the retention of their contents

**3.1.18****program**

software necessary for a CIE to comply with at least the requirements of this draft European Standard, including initializing data, reset and interrupt vectors, operating code, and declarations

**3.1.19****running data**

alterable data subject to temporary modification during operation, either automatically or by manual controls

**3.1.20****separate**

physically separate, and exclusively provided for the purpose or purposes stated in this draft European Standard

**3.1.21****silencing**

switching off the audible signal of a sounding device that is capable of being re-sounded by a new event

**3.1.22****site specific data**

alterable data required for the CIE to operate in a defined system configuration

**3.1.23****test condition**

functional condition when the testing of functions is indicated

**3.1.24****volatile memory**

memory elements that require the presence of an energy source for the retention of their contents

**3.1.25****window**

area of the information display, realized either by mechanical separation or under software control, that is used for information relating to one functional condition at a given time

**3.1.26****integrated PSE**

PSE incorporated within other equipment, which supplies power to that equipment and may have one or more outputs to power external equipment

**3.2 Abbreviations**

For the purposes of this document, the abbreviations given in EN 54-1:2011 and the following apply.

- AL1 access level 1
- AL2 access level 2
- AL3 access level 3
- AL4 access level 4

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the testing of functions is indicated  
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**prEN 54-2:2015 (E)**

- A EN 54-1:2001 automatic fire detection function
- C EN 54-1:2011 fire alarm function
- D EN 54-1:2011 manual initiating function
- E EN 54-1:2011 fire alarm routing function
- G EN 54-1:2011 control function for fire protection system or equipment
- J EN 54-1:2011 fault warning routing function
- L EN 54-1:2011 power supply function
- M EN 54-1:2011 control and indication function for alarm annunciation
- N EN 54-1:2011 ancillary input or output function

**4 Requirements****4.1 Compliance**

In order to comply with this standard, CIE shall meet the requirements of this clause, which shall be verified by visual inspection or engineering assessment and shall be tested as described in Clause 5 and shall meet the requirements of the tests.

**4.2 Operational reliability****4.2.1 Functional conditions and related indications****4.2.1.1 Primary functions**

**4.2.1.1.1** The CIE shall be capable of unambiguously indicating the following functional conditions:

- 1) quiescent condition;
- 2) fire alarm condition;
- 3) fault warning condition;
- 4) disablement condition;
- 5) test condition, if provided.

**4.2.1.1.2** The CIE shall be capable of being simultaneously in any combination of the following functional conditions:

- 1) fire alarm condition;
- 2) fault warning condition;
- 3) disablement condition;
- 4) test condition, if provided.

**4.2.1.1.3** All indications shall be clearly identifiable, except where otherwise specified in this draft European Standard.

**4.2.1.1.4** Indications shall not be falsified by showing incorrect information.

**4.2.1.1.5** Where light emitting indicators and an information display are both provided, at least one of these means shall meet the requirements for each indication in this draft European Standard. The other means may give supplementary information.

**4.2.1.1.6** Where an information display is used to display indications relating to different functional conditions these may be displayed at the same time. However, for each functional condition there shall be only one window, in which all of the fields relating to that functional condition are grouped.

**4.2.1.1.7** A visible indication shall be given by means of a separate light emitting indicator, a fixed light emitting element on an information display, or both while the CIE is supplied with power.

**4.2.1.1.8** Where indications are used in addition to those required in this standard these shall not result in contradiction or confusion.

**4.2.1.1.9** If functions other than those specified in this draft European Standard are provided they shall not jeopardize compliance with any requirements of this draft European Standard.

#### **4.2.1.2 Fire alarm condition**

##### **4.2.1.2.1 Reception and processing of fire signals (see also Annex C)**

**4.2.1.2.1.1** The CIE shall enter the fire alarm condition when signals are received which after any necessary processing are interpreted as a fire alarm.

**4.2.1.2.1.2** The CIE shall be capable of receiving, processing and indicating signals from all zones. A signal from one zone shall not falsify the processing, storing and indication of signals from other zones.

**4.2.1.2.1.3** Unless 4.2.8 applies, the time taken by scanning, interrogation, or other processing of signals from fire detectors, in addition to that required to take the fire alarm decision, shall not delay the entry to the fire alarm condition with its indication, or the indication of a new zone in alarm, by more than 10 s.

**4.2.1.2.1.4** The CIE shall enter the fire alarm condition within 10 s of the activation of any manual call point. The manufacturer may specify a time shorter than 10 s. In this case, this specification shall be tested and verified.

**4.2.1.2.1.5** The indications and outputs shall not be falsified by multiple fire signals received from fire detectors, manual call points or input devices, from the same or different transmission paths, resulting from:

- 1) the simultaneous reception of two signals followed by the reception of a further signal;
- 2) the sequential reception of more than one signal.

##### **4.2.1.2.2 Indication of the fire alarm condition**

The fire alarm condition shall be indicated without prior manual intervention. The indication is established when all of the following are present:

- 1) a visible indication, (the general fire alarm indication) by means of a separate light emitting indicator, a fixed light emitting element on an information display, or both;
- 2) a visible indication, as specified in 4.2.1.2.3, of the zones in alarm, which may be omitted for CIE capable of receiving signals from only one zone;
- 3) an audible indication, as specified in 4.2.1.2.4.