



SLOVENSKI STANDARD

oSIST prEN 54-2:2012

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

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

Brandmeldeanlagen - Teil 2: Brandmelderzentralen

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

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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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Foreword

This document (prEN 54-2:2012) 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.

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

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 European Standard has been prepared in co-operation with the CEA (Comite Europeen des Assurances) and with EURALARM (Association of European Manufacturers of Fire and Intruder Alarm Systems).

EN 54-2 “Fire detection and fire alarm systems” consists of the following parts

- ITeH STANDARD PREVIEW**
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- *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 light beam*
 - *Part 13: Compatibility assessment of system components*
 - *Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance*
 - *Part 15: Point type multi-sensor fire detectors*
 - *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 and fault warning routing equipment*

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- *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: Point fire detectors using carbon monoxide sensors*
- *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 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*

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Introduction

This part of the European Standard EN 54 is drafted on the basis of a set of core requirements for operational reliability (under 4.1.1), plus a number of free-standing additional requirements for operational reliability (under 4.1.2 to 4.1.14). It is expected that the core requirements under 4.1.1 would apply to all control and indicating equipment, together with the requirements for durability under 4.2. 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 European Standard.

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

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prEN 54-2:2012 (E)**1 Scope**

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

2 Normative references

The following referenced documents are indispensable for the application 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 54-1:2011, Fire detection and fire alarm systems — Part 1: Introduction

EN 54-4:1997, Fire detection and fire alarm systems — Part 4: Power supply equipment

EN 54-4:1997/A1:2002 Fire detection and fire alarm systems — Part 4: Power supply equipment

EN 54-4:1997/A2:2006 Fire detection and fire alarm systems — Part 4: Power supply equipment

EN 54-7:2000, Fire detection and fire alarm systems - Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization

EN 54-7:2000/A1:2002, Fire detection and fire alarm systems - Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization

EN 54-7:2000/A2:2006, Fire detection and fire alarm systems - Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization

EN 54-17:2005, Fire detection and fire alarm systems - Part 17: Short circuit isolators

EN 54-25:2008, Fire detection and fire alarm systems - Part 25: Components using radio links

EN 50130-4:1995, Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder and social alarm systems

EN 50130-4:1995/A1:1998, Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder and social alarm systems

EN 50130-4:1995/A2:2003, Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder 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: tests; tests A: cold (IEC 60068-2-1:2007)

EN 60068-2-6:2008, Environmental testing - Part 2: Tests - Tests Fc: Vibration (sinusoidal) (IEC 60068-2-6:2007)

EN 60068-2-47:2005, Environmental testing - Part 2-47: Test Mounting of specimens for vibration, impact and similar dynamic tests (IEC 60068-2-47:2005)

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

EN 60068-2-78:2001, Environmental testing — Part 2-78: Tests, Test Cab: Damp heat, steady state (IEC 60068-2-78:2001)

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

EN 60721-3-3:1995, Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weatherprotected locations (IEC 60721-3-3:1994)

3 Terms, definitions and abbreviations

For the purposes of this European Standard, the terms, definitions and abbreviations given in EN 54-1:2011 apply together with the following.

3.1

addressable device

a device that can be individually identified at the CIE

3.2

alphanumeric display

indicator that is capable of giving information by the display of messages consisting of text, numeric characters, or both

3.3

confirmation alarm signal

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

3.4

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

3.5

field

sub-division of a window

3.6

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

3.7

first alarm state

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

3.8

functional condition

state of the CIE characterised by mandatory indication(s)

3.9

indicator

device which can change its state to give information

3.10

module

part of the program that fulfils specified functions

prEN 54-2:2012 (E)**3.11****non-volatile memory**

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

3.12**program**

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

3.13**running data**

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

3.14**separate**

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

3.15**silencing**

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

3.16**site specific data**

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

3.17**volatile memory**

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

3.18**window**

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

NOTE A window may be realized either by mechanical separation or under software control.

3.2 Abbreviations

For the purposes of this European Standard the abbreviations given in EN 54-1:2011 apply together with the following.

AL access level

4 Requirements**4.1 Operational reliability****4.1.1 Functional conditions and related indications****4.1.1.1 Primary functions**

4.1.1.1.1 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.

4.1.1.1.2 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.

4.1.1.1.3 All mandatory indications shall be clearly identifiable, except where otherwise specified in this European Standard.

4.1.1.1.4 Mandatory indications shall not be falsified.

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

4.1.1.1.6 Where an alphanumeric 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.

4.1.1.1.7 A visible indication shall be given by means of a separate light emitting indicator while the CIE is supplied with power.

4.1.1.1.8 Any kind of system information may be displayed during the quiescent condition. However, no indications shall be given which could be confused with indications used in the:

- (1) fire alarm condition;
- (2) fault warning condition;
- (3) disablement condition;
- (4) test condition.

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4.1.1.1.9 Where indications are used in addition to mandatory indications these shall not result in contradiction or confusion.

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

4.1.1.2 Fire alarm condition**4.1.1.2.1 Reception and processing of fire signals (see also annex C)**

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

4.1.1.2.1.2 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.

4.1.1.2.1.3 Unless 4.1.8 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.

4.1.1.2.1.4 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.

4.1.1.2.1.5 The mandatory 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 detection circuits, 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.

4.1.1.2.2 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, by means of a separate light emitting indicator (the general fire alarm indicator);
- 2) a visible indication, as specified in 4.1.1.2.3, 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 4.1.1.2.4 .

4.1.1.2.3 Indication of the zones in alarm (see also annex D)

4.1.1.2.3.1 The zones in alarm shall be visibly indicated by means of one or both of the following:

- (1) a separate light emitting indicator for each zone;
- (2) an alphanumeric display.

4.1.1.2.3.2 If the zonal indications are on an alphanumeric display, which cannot simultaneously indicate all the zones in alarm because of its limited capacity, at least the following shall apply.

- a) The first zone in alarm shall be displayed in a field at the top of the display.
- (b) If there is more than one zone in alarm, the most recent zone in alarm shall be permanently displayed in another defined field.
- (c) If there is more than one zone in alarm, the total number of zones in alarm shall be displayed.
- (d) Zones in alarm, but not currently indicated, shall be capable of being displayed at AL1. A single manual action shall be required for the display of each additional zone in alarm. Either individual fields, or the whole alarm window, may be temporarily suppressed to permit the display of additional zones in alarm. However, the display shall meet the requirements of 4.1.1.2.3.2 (a) to (c) within 30 s following the last interrogation.

4.1.1.2.4 Audible indication

4.1.1.2.4.1 The audible indication for the fire alarm condition may be the same as that for the fault warning condition. If they are different, the fire alarm indication shall have priority.

4.1.1.2.4.2 The audible indication shall be capable of being silenced by means of a separate manual control at AL1 or AL2. This control shall only be used for silencing the audible indication, and may be the same as that used for silencing in the fault warning condition.

The silencing of the audible indication may be accompanied by changes in the visible indications of fire or fault, provided that the required indication of functional conditions is still provided (e.g. the indication of light emitting indicators may change from flashing to steady, or the information given on an alphanumeric display may be updated).

4.1.1.2.4.3 The audible indication shall not be silenced automatically.

4.1.1.2.4.4 The audible indication shall re-sound for each new zone in alarm.

4.1.1.2.5 Other indications during the fire alarm condition

4.1.1.2.5.1 If faults, disablements or tests are indicated by means of one or more light emitting indicators, and such indications are suppressed during the fire alarm condition, it shall be possible to reveal these by means of a manual operation at AL1 or AL2.

4.1.1.2.5.2 If the fire alarm indications are on an alphanumeric display, the following shall apply to the display of other information on the alphanumeric display.

- (a) Information not related to the fire alarm condition shall be suppressed, unless the display has more than one window, one of which is exclusively reserved for fire alarm indications.
- (b) Suppressed indications of faults, disablements and tests shall be capable of being displayed, at any time, by manual operations at AL1 or AL2, which are different from, or additional to that specified in 4.1.1.2.3.2 (d) to display zones in fire alarm, and which are capable of displaying faults, disablements and tests independently.
- (c) Either individual fields, or the whole fire alarm window, may be temporarily suppressed to permit the display of faults, disablements and tests. However, the display shall meet the requirements of 4.1.1.2.3.2 (a) to (c) within 30 s following the last interrogation.

prEN 54-2:2012 (E)**4.1.1.2.6 Reset from the fire alarm condition**

4.1.1.2.6.1 The CIE shall be capable of being reset from the fire alarm condition. Unless 4.1.1.4.5(b) applies, this shall only be possible by means of a separate manual control at AL2. This control shall be used only for reset and may be the same as that used for reset from the fault warning condition. Another operation (e.g. silence audible indication) may be necessary before reset.

4.1.1.2.6.2 Following a reset operation, the correct functional conditions, corresponding to any received signals, shall either remain, or be re-established within 20 s.

4.1.1.2.7 Output of the fire alarm condition

4.1.1.2.7.1 At least one output that signals the fire alarm condition shall be provided, which may be an output as specified in 4.1.2, 4.1.3, or 4.1.4.

4.1.1.2.7.2 Unless 4.1.7 or 4.1.8 apply, the following shall be activated within 3 s of the indication of the fire alarm condition:

- (1) at least one output of 4.1.1.2.7.1;
- (2) at least one output signal of 4.1.2;
- (3) at least one output signal of 4.1.3;
- (4) at least one output signal of 4.1.4.

The manufacturer may specify a time shorter than 3 s. In this case, this specification shall be tested and verified.

4.1.1.2.7.3 All other output signals of 4.1.1.2.7.1, 4.1.2, 4.1.3, or 4.1.4 which follow the first signal in 4.1.1.2.7.2 shall be activated within 10 s of the indication of the fire alarm condition.

4.1.1.3 Fault warning condition (see also annex F)**4.1.1.3.1 Reception and processing of fault signals**

4.1.1.3.1.1 The CIE shall enter the fault warning condition when signals are received which, after any necessary processing, are interpreted as a fault.

4.1.1.3.1.2 The CIE shall be capable of simultaneously recognising all faults required by this European Standard, with the exception that the recognition of a fault in a given zone or function may be prevented by one or more of the following.

- (a) The presence of fire alarm signals from the same zone.
- (b) The testing of the corresponding zone or function.
- (c) The activation of the output to a transmission path which is exclusively used to transmit signals to one or more of the following:
 - (1) fire alarm devices (function C of EN 54-1:2011);
 - (2) fire alarm routing equipment (function E of EN 54-1:2011);
 - (3) controls for automatic fire protection equipment (function G of EN 54-1:2011);

(4) fault warning routing equipment (function J of EN 54-1:2011).

4.1.1.3.1.3 The CIE shall enter the fault warning condition within 100 s of the occurrence of the fault or the reception of a fault signal, or within another time as specified in this European Standard or in other parts of EN 54.

4.1.1.3.2 Indication of faults

4.1.1.3.2.1 Faults shall be indicated without prior manual intervention. The fault warning condition is established when the following are present:

- (1) a visible indication by means of a separate light emitting indicator (the general fault warning indicator);
- (2) a visible indication for each recognized fault, by means of light emitting indicators, an alphanumeric display, or both;
- (3) an audible indication, as specified in 4.1.1.3.3.

4.1.1.3.2.2 If the indication of 4.1.1.3.2.1 (2) is by means of separate light emitting indicators, these may be the same as those used to indicate disablement or testing of the corresponding zones or functions, provided that the fault indication is distinguishable from the disablement and test indications (see also 4.1.1.5.5.3).

4.1.1.3.2.3 For the indication of 4.1.1.3.2.1 (2) at least the following shall apply:

- (a) The presence of fault indications that have been suppressed shall be indicated.
- (b) Suppressed fault indications shall be capable of being displayed by means of a manual operation at AL1 or AL2 which interrogates only fault indications.

4.1.1.3.2.4 Faults shall be recognised and indicated as follows. The indications may be suppressed during the fire alarm condition.

- (a) An indication for each zone in which the transmission of signals from fire detectors, manual call points or input devices to the CIE is affected by:
 - (1) a short circuit in a detection circuit;
 - (2) an interruption in a detection circuit;
 - (3) the removal of a detachable component.
- (b) An indication, at least common to any power supply fault resulting from:
 - (1) a short circuit or an interruption in a transmission path to a PSE, where the power supply is contained in a different cabinet from that of the CIE;
 - (2) PSE faults as specified in EN 54-4:1997 as amended by EN 54-4:1997/A1:2002 and EN 54-4:1997/A2:2006.
- (c) An indication, at least common to any single earth fault that affects a mandatory function, and which is not otherwise indicated as a fault of a supervised function.
- (d) An indication as a fault of the supervised function of the rupture of any fuse, or the operation of any protective device which is capable of affecting a mandatory function in the fire alarm condition.