



SLOVENSKI STANDARD
SIST EN 54-2:1997

01-december-1997

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: Brandmeldezentralen

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

ITEH STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN 54-2:1997

<https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e76d5c4a30/sist-en-54-2-1997>

ICS:

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

SIST EN 54-2:1997

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 54-2:1997

<https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e76d5c4a30/sist-en-54-2-1997>

EUROPEAN STANDARD

EN 54-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1997

ICS 13.220.20

Descriptors: fire equipment, fire detection systems, automatic equipment, safety devices, signal devices, inspection devices, specifications, tests, classification, marking

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 European Standard was approved by CEN on 25 December 1996.

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.

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 Central Secretariat has the same status as the official versions.

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 54-2:1997

<https://standards.iteh.ai/catalog/standards/sist/6ca411d2-6c1f-4f3d-b5d6-59e76d5c4a30/sist-en-54-2-1997>



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

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

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Definitions and abbreviations

3.1 Definitions

3.2 Abbreviations

4 General requirements

5 General requirements for indications

5.1 Display of functional conditions

5.2 Display of indications

5.3 Indications on alphanumeric displays

5.4 Indication of the supply of power

5.5 Audible indications

5.6 Additional indications

6 The quiescent condition

7 The fire alarm condition

7.1 Reception and processing of fire signals (see also annex C)

7.2 Indication of the fire alarm condition

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

7.4 Audible indication

7.5 Other indications during the fire alarm condition

7.6 Reset from the fire alarm condition

7.7 Output of the fire alarm condition

7.8 Output to fire alarm devices (option with requirements - see also 8.2.5.a) and 9.4.2.a))

7.9 Output to fire alarm routing equipment (option with requirements - see also 8.2.5.b) and 9.4.2.b))

7.10 Output to fire protection equipment (option with requirements - see also 8.2.4.f) and 9.4.1.b))

7.11 Delays to outputs (option with requirements - see also 9.4.2.c) and annex E)

7.12 Co-incident detection (option with requirements)

7.13 Alarm counter (option with requirements)

8 Fault warning condition (see also annex F)

8.1 Reception and processing of fault signals

8.2 Indication of faults in specified functions

8.3 Fault signals from points (option with requirements)

8.4 Total loss of the power supply (option with requirements)

8.5 System fault

- 8.6 Audible indication
- 8.7 Reset of fault indications
- 8.8 Fault output
- 8.9 Output to fault warning routing equipment (option with requirements - see also 9.4.1.c))

9 Disabled condition

- 9.1 General requirements
- 9.2 Indication of the disabled condition
- 9.3 Indication of specific disablements
- 9.4 Disablements and their indication
- 9.5 Disablement of addressable points (option with requirements)

10 Test condition (option with requirements)

- 10.1 General requirements
- 10.2 Indication of the test condition
- 10.3 Indication of zones in the test state

11 Standardized input/output interface (option with requirements - see also annex G)

12 Design requirements

- 12.1 General requirements and manufacturer's declarations
- 12.2 Documentation
- 12.3 Mechanical design requirements
- 12.4 Electrical and other design requirements
- 12.5 Integrity of transmission paths (see also annex H)
- 12.6 Accessibility of indications and controls (see also annex A)
- 12.7 Indications by means of light emitting indicators
- 12.8 Indications on alphanumeric displays
- 12.9 Colours of indications
- 12.10 Audible indications
- 12.11 Testing of indicators

13 Additional design requirements for software controlled control and indicating equipments

- 13.1 General requirements and manufacturer's declarations
- 13.2 Software documentation
- 13.3 Software design
- 13.4 Program monitoring (see also annex J)
- 13.5 The storage of programs and data (see also annex J)
- 13.6 The monitoring of memory contents
- 13.7 Operation of the c.i.e in the event of a system fault

14 Marking

15 Tests

- 15.1 General
- 15.2 Functional test
- 15.3 Environmental tests
- 15.4 Cold (operational)

Page 4

EN 54-2:1997

- 15.5 Damp heat, steady state (operational)
- 15.6 Impact (operational)
- 15.7 Vibration, sinusoidal (operational)
- 15.8 Electrostatic discharges (operational)
- 15.9 Radiated electromagnetic interference (operational)
- 15.10 Voltage transients - fast transient bursts (operational)
- 15.11 Voltage transients - slow high energy transients (operational)
- 15.12 Mains voltage dips and interruptions (operational)
- 15.13 Supply voltage variation (operational)

- 15.14 Damp heat, steady state (endurance)
- 15.15 Vibration, sinusoidal (endurance)

Annex A (informative) Explanation of access levels

Annex B (informative) Optional functions with requirements and alternatives

Annex C (informative) Processing of signals from fire detectors

Annex D (informative) Explanation of zones and the zonal indication of fire alarms

Annex E (informative) Delays to outputs

Annex F (informative) Fault recognition and indication

Annex G (informative) Standardized input/output interface for the connection of ancillary equipment

Annex H (informative) Integrity of transmission paths

Annex J (informative) Design requirements for software controlled control and indicating equipments

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

EN 54 is published in a series of parts. Information on the relationship between this European Standard and other standards of the EN 54 series is given in annex A of EN 54-1.

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 April 1998, and conflicting national standards shall be withdrawn at the latest by April 1999. In addition, a further 36 months shall be allowed for certification purposes for equipment conforming to the national standard.

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

Introduction

This part of the European Standard EN 54 is drafted on the basis of mandatory functions which are to be provided on all control and indicating equipments, and optional functions (with requirements) which may be provided. It is intended that the options be used for specific applications, as recommended in application guidelines.

Each optional function is included as a separate entity, with its own set of associated requirements, in order to permit control and indicating equipments 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.

[SIST EN 54-2:1997](https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e76d5c4a30/sist-en-54-2-1997)

<https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e76d5c4a30/sist-en-54-2-1997>

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) for use in fire detection and fire alarm systems installed in buildings.

2. Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 54	Fire detection and fire alarm systems
EN 54-1:1996	Introduction
EN 54-4:1996	Power supplies
prEN 54-7	Point type smoke detectors - Detectors using scattered light, transmitted light or ionization
ENV 50142:1994	Electromagnetic compatibility - Basic immunity standard - Surge immunity tests
IEC 68	Basic environmental testing procedures
Part 1 : 1988 :	General and guidance
Part 2:	Tests
68-2-1:1990 test A:	cold
68-2-2:1974 test B:	dry heat
68-2-3:1969+A1:1984 test Ca:	damp heat, steady state
68-2-6:1982+A1:1983+A2:1985	test Fc and guidance; vibration (sinusoidal)
68-2-47:1982	Specification for mounting of components, equipment and other articles for dynamic tests
IEC 529:1989	Classification of degrees of protection provided by enclosures
IEC 721	Classification of environmental conditions
Part 3:	Classifications of groups of environmental parameters and their severities
721-3-3:1978	Stationary use and weather protected locations

IEC 801 Electromagnetic compatibility for industrial-process measurement and control equipment

Part 2:1991 Method of evaluating susceptibility to electrostatic discharge

Part 3:1984 Radiated electromagnetic field - requirements

Part 4:1988 Electrical fast transient/burst requirements

IEC 817:1984 Spring-operated impact test apparatus and its calibrations

3. Definitions and abbreviations

3.1. Definitions

For the purposes of this standard, the definitions given in EN 54-1 apply together with the following:

3.1.1. access level: One of several states of a c.i.e. in which selected

- controls can be operated;
- manual operations can be carried out;
- indications are visible, and/or;
- information can be obtained.

NOTE: Further information on access levels is given in annex A.

3.1.2. addressable point: A point which can be individually identified at the c.i.e. (see also the definition for 'point').

3.1.3. alphanumeric display: An indicator capable of giving information by the display of messages consisting of text and/or numeric characters.

3.1.4. functional condition: A condition of the c.i.e. characterized by its indication at the c.i.e.

<https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e76d5c4e30/sist-en-54-2-1997>

The functional conditions recognized in this European Standard are the

- fire alarm condition, when a fire alarm is indicated;
- fault warning condition, when a fault is indicated;
- disabled condition, when the disablement of functions is indicated;
- test condition, when the testing of functions is indicated;

- quiescent condition, when the c.i.e. is powered by a power supply conforming to EN 54-4 and no other functional condition is indicated.

3.1.5. detection circuit: A transmission path which connects points to the c.i.e. (see also the definition for 'point' and 'transmission path').

3.1.6. earth fault: An unwanted connection between earth potential and any part of the c.i.e., transmission paths to the c.i.e., or transmission paths between parts of the c.i.e.

3.1.7. field: A sub-division of a window.

3.1.8. indicator: A device which can change its state to give information.

3.1.9. indication: The information given by an indicator.

3.1.10. mandatory: Adjective used to describe

- functions which shall be provided on all c.i.e.s, and the requirements of these functions, and;
- the requirements of optional functions with requirements, if these are provided.

3.1.11. non-volatile memory: Memory elements which do not require the presence of an energy source for the retention of their contents.

3.1.12. point: A component connected to a detection circuit able to transmit, or receive information in relation to fire detection (includes items A and D of figure 1 of EN 54-1).

3.1.13. program: Software necessary for a c.i.e. to comply with at least the requirements of this European Standard, including initializing data, reset and interrupt vectors, operating code, and declarations.

3.1.14. reset: The operation capable of terminating the fire alarm condition and/or the fault warning condition.

3.1.15. running data: Alterable data subject to temporary modification during operation, either automatically or by manual controls.

3.1.16. separate: Physically separate and exclusively provided for the purpose or purposes stated in this European Standard.

3.1.17. silencing: Manual operation to switch off the audible signal of a sounding device which is capable of being automatically resounded by a new event.

3.1.18. site specific data: Alterable data required for the c.i.e. to operate in a defined system configuration.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 54-2:1997
<https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e76d5c4a30/sist-en-54-2-1997>

3.1.19. transmission path: A physical connection, external to the cabinet of the c.i.e., for the transmission of information and/or power

- between the c.i.e. and other components of a fire detection and fire alarm system as defined in EN 54-1, and/or;
- between parts of a c.i.e. contained in different cabinets.

3.1.20. volatile memory: Memory elements which require the presence of an energy source for the retention of their contents.

3.1.21. window: Part or all of an alphanumeric display used for information relating to one functional condition at a given time. A sub-division of the display may be realized either by mechanical separation, or under software control.

3.1.22. zone: A geographical sub-division of the protected premises in which one or more points are installed and for which a common zonal indication is provided.

3.2. Abbreviations

For the purposes of this European Standard the following abbreviation applies:

c.i.e.: control and indicating equipment.

4. General requirements

If an optional function with requirements is included in the c.i.e., then all the corresponding requirements shall be met (see also annex B).

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

5. General requirements for indications

5.1. Display of functional conditions

5.1.1. The c.i.e. shall be capable of unambiguously indicating the following functional conditions, as described in clauses 6 to 10:

- quiescent condition;
- fire alarm condition;
- fault warning condition;
- disablement condition;

- test condition.

5.1.2. The c.i.e. shall be capable of being simultaneously in any combination of the following functional conditions:

- fire alarm condition;
- fault warning condition;
- disablement condition;
- test condition.

5.2. Display of indications

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

5.3. Indications on alphanumeric displays

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.

5.4. Indication of the supply of power

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

5.5. Audible indications

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.

5.6. Additional indications

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

6. The quiescent condition

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

- fire alarm condition;

- fault warning condition;
- disabled condition;
- test condition.

7. The fire alarm condition

7.1. Reception and processing of fire signals (see also annex C)

7.1.1. The c.i.e. shall enter the fire alarm condition when signals are received which after any necessary processing are interpreted as a fire alarm.

7.1.2. The c.i.e. shall be capable of receiving, processing and indicating signals from all zones. A signal from one zone shall not falsify the processing storing and/or indication of signals from other zones.

7.1.3. Unless 7.12 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 indication of the fire alarm condition, or of a new zone in alarm by more than 10 s.

7.1.4. The c.i.e. shall enter the fire alarm condition within 10 s of the activation of any manual call point.

7.1.5. The mandatory indications and/or outputs shall not be falsified by multiple fire signals received from the same or different detection circuits, resulting from the simultaneous operation of two points and/or the operation of further points.

7.2 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:

a) a visible indication, by means of a separate light emitting indicator (the General Fire Alarm Indicator);

[SIST EN 54-2:1997](https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e769554a36/sist-en-54-2-1997)

[https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-](https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e769554a36/sist-en-54-2-1997)

b) a visible indication, as specified in 7.3, of the zones in alarm, which may be omitted for c.i.e.s capable of receiving signals from only one zone;

c) an audible indication, as specified in 7.4.

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

7.3.1 The zones in alarm shall be visibly indicated by means of a separate light emitting indicator for each zone and/or an alphanumeric display.

7.3.2 If the zonal indications are on an alphanumeric display, which because of its limited capacity cannot simultaneously indicate all the zones in alarm, 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) the most recent zone in alarm shall be permanently displayed in another field;
- c) the total number of zones in alarm shall be permanently displayed;
- d) zones in alarm not currently indicated shall be capable of being displayed at access level 1. A single manual action shall be required for each display of zonal information, which shall either be in the field used for the first zone in alarm, or in another field. In the former case the display shall revert to the first zone in alarm between 15 s and 30 s following the last interrogation.

7.4 Audible indication

7.4.1 The audible indication shall be capable of being silenced by means of a separate manual control at access level 1 or 2. 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.

7.4.2 The audible indication shall not be silenced automatically.

7.4.3 The audible indication shall resound for each new zone in alarm.

7.5 Other indications during the fire alarm condition

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

- 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;
<https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-59e76d5c1a30/sist-en-54-2-1997>
- b) suppressed indications of faults and disablements shall each be capable of being displayed, at any time, by manual operations at access level 1 or 2. These operations shall be different from, or additional to that specified in 7.3.2.d) to display zones in alarm. If the display is in the field where the first zone in alarm is displayed, the indication shall revert to the first zone in alarm between 15 s and 30 s following the last interrogation.

7.6 Reset from the fire alarm condition

7.6.1 The c.i.e shall be capable of being reset from the fire alarm condition. This shall only be possible by means of a separate manual control at access level 2. This control shall be used only for reset and may be the same as that used for reset from the fault warning condition.

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

7.7 Output of the fire alarm condition

7.7.1 At least one output which signals the fire alarm condition shall be provided, which may be an output as specified in 7.8, 7.9, or 7.10.

7.7.2 Unless 7.11 and/or 7.12 apply, the c.i.e shall action all mandatory outputs within 3 s of the indication of a fire alarm condition.

7.7.3 Unless 7.11 applies, the c.i.e. shall action all mandatory outputs within 10 s of the activation of any manual call point.

7.8 Output to fire alarm devices (option with requirements -see also 8.2.5.a) and 9.4.2.a))

The c.i.e. may have provision for the automatic transmission of fire alarm signals to fire alarm devices (item C of figure 1 of EN 54-1). In this case the following shall apply:

- a) it shall be possible to silence the fire alarm devices at access level 2;
- b) following silencing, it shall be possible to resound the fire alarm devices at access level 2.

7.9 Output to fire alarm routing equipment (option with requirements - see also 8.2.5.b) and 9.4.2.b))

The c.i.e. may have provision for the automatic transmission of fire alarm signals to fire alarm routing equipment (item E of figure 1 of EN 54-1). In this case the transmission of the signal shall be indicated by means of a separate light emitting indicator and/or an alphanumeric display. The indication shall remain until the fire alarm condition is reset.

<https://standards.iteh.ai/catalog/standards/sist/6cacb1d2-6c1f-4f3d-b5d6-5076d5e483/cispr-54-2-1997>

7.10 Output to fire protection equipment (option with requirements - see also 8.2.4.f) and 9.4.1.b))

The c.i.e. may have provision for the transmission of fire alarm signals to controls for automatic fire protection equipment (item G of figure 1 of EN 54-1).