Automaatne tulekahjusignalisatsioonisüsteem. Osa 2: Keskseadmed

Fire detection and fire alarm systems - Part 2: Control Occurrence of the second of th and indicating equipment



#### **EESTI STANDARDI EESSÕNA**

#### **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 54-2:1999
sisaldab Euroopa standardi EN 54-
2:1997+AC:1999 ingliskeelset teksti.

This Estonian standard EVS-EN 54-2:1999 consists of the English text of the European standard EN 54-2:1997+AC:1999.

Standard on kinnitatud Eesti Standardikeskuse 10.06.1999 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

This standard is ratified with the order of Estonian Centre for Standardisation dated 10.06.1999 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 22.10.1997.

Date of Availability of the European standard text 22.10.1997.

Standard on kättesaadav Eesti standardiorganisatsioonist.

The standard is available from Estonian standardisation organisation.

ICS 13,220,20

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

#### Standardite reprodutseerimis- ja levitamisõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

## EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 54-2

October 1997

ICS 13.220.20

Descriptors: Fire detection equipment.

#### **English version**

## Fire detection and fire alarm systems

Part 2: Control and indicating equipment

Systèmes de détection et d'alarme incendie – Partie 2: Equipement de contrôle et de signalisation Brandmeldeanlagen – Teil 2: Brandmelderzentralen

This European Standard was approved by CEN on 1996-12-25.

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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

# CEN

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

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

Page 2 EN 54-2 : 1997

#### **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-incidence 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)

- 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.

#### 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.

Page 6 EN 54-2 : 1997

#### 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

Page 7 FN 54-2 · 1997

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.

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;