

საქართველოს სტანდარტი

სსვ: 13.220.20

ხანძრის აღმოჩენისა და ხანძრის გამაფრთხილებელი სიგნალის სისტემები -
სახელმძღვანელოები დაგეგმვის, დიზაინის, მონტაჟის, უფლებამოსილების,
გამოყენებისა და შენარჩუნების

საინფორმაციო მონაცემები

1. მიღებულია და დაშვებულია სამოქმედოდ: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს გენერალური დირექტორის 30/12/2020 წლის № 125 განკარგულებით

2. მიღებულია „თავფურცლის“ თარგმნის მეთოდით: სტანდარტიზაციის ევროპული კომიტეტის (სენ) სტანდარტი სენ/ტს 54-14:2018 „ხანძრის აღმოჩენისა და ხანძრის გამაფრთხილებელი სიგნალის სისტემები - სახელმძღვანელოები დაგეგმვის, დიზაინის, მონტაჟის, უფლებამოსილების, გამოყენებისა და შენარჩუნების“

3. პირველად

4. რეგისტრირებულია: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში 30/12/2020 წლის №268-1.3-019565

წინამდებარე სტანდარტის ნებისმიერი ფორმით გავრცელება სააგენტოს ნებართვის გარეშე აკრძალულია

English Version

Fire detection and fire alarm systems - Part 14: Guidelines
for planning, design, installation, commissioning, use and
maintenance

Guide d'application pour la planification, la conception,
l'installation, la mise en service, l'exploitation et la
maintenance des systèmes de détection et d'alarme
incendie

Brandmeldeanlagen - Teil 14: Leitfaden für Planung,
Projektierung, Montage, Inbetriebsetzung, Betrieb und
Instandhaltung

This Technical Specification (CEN/TS) was approved by CEN on 2 March 2018 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

| Contents | Page |
|---|-------------|
| European foreword..... | 7 |
| Introduction | 9 |
| 1 Scope | 10 |
| 2 Normative references | 10 |
| 3 Terms and definitions | 11 |
| 4 General..... | 15 |
| 4.1 Guideline usage..... | 15 |
| 4.2 Guideline format..... | 16 |
| 4.3 False alarms | 18 |
| 4.4 Documentation..... | 18 |
| 4.5 Responsibility..... | 18 |
| 4.6 Qualifications..... | 18 |
| 5 Assessment of needs | 18 |
| 5.1 Purpose..... | 18 |
| 5.2 Consultation | 18 |
| 5.3 Parts of the building needing cover..... | 19 |
| 5.3.1 Extent of cover..... | 19 |
| 5.3.2 Description of extent..... | 20 |
| 5.3.3 Total cover | 20 |
| 5.3.4 Fire compartment cover | 20 |
| 5.3.5 Escape route cover | 20 |
| 5.3.6 Local cover..... | 20 |
| 5.3.7 Equipment cover | 21 |
| 5.3.8 Manual detection system..... | 21 |
| 5.3.9 Areas not needing cover | 21 |
| 5.4 Fire brigade attendance..... | 22 |
| 5.4.1 Communications..... | 22 |
| 5.4.2 Delay to output E according to EN 54-2..... | 22 |
| 5.5 Fire alarm response strategy | 22 |
| 5.6 Documentation..... | 23 |
| 5.7 Responsibility..... | 23 |
| 5.8 Qualifications..... | 23 |
| 6 Planning and design | 23 |
| 6.1 Devices connected to the system..... | 23 |
| 6.1.1 Components | 23 |
| 6.2 System design | 23 |
| 6.2.1 Compatibility | 23 |
| 6.2.2 Fault effects | 23 |
| 6.2.3 Hazardous atmospheres..... | 25 |
| 6.2.4 False alarms | 25 |
| 6.2.5 Connection to fire protection systems..... | 25 |
| 6.2.6 Special risks | 25 |
| 6.3 Zones..... | 25 |
| 6.3.1 General..... | 25 |

საინფორმაციო ნაწილი. სრული ტექსტის სახსრავად შეიძინეთ სტანდარტი.

| | | |
|--------|---|----|
| 6.3.2 | Detection zones | 25 |
| 6.3.3 | Alarm zones | 26 |
| 6.4 | Selection of detectors and manual call points..... | 26 |
| 6.4.1 | Detectors - General..... | 26 |
| 6.4.2 | Smoke detectors..... | 27 |
| 6.4.3 | Heat detectors..... | 27 |
| 6.4.4 | Flame detectors..... | 28 |
| 6.4.5 | Combustion gas fire detectors | 28 |
| 6.4.6 | Multi-sensor fire detectors..... | 28 |
| 6.4.7 | Radio linked systems..... | 30 |
| 6.4.8 | Manual call points | 30 |
| 6.5 | Siting and spacing of detectors and manual call points..... | 31 |
| 6.5.1 | General | 31 |
| 6.5.2 | Heat and smoke detectors | 36 |
| 6.5.3 | Flame detectors..... | 37 |
| 6.5.4 | Manual call points | 40 |
| 6.5.5 | Identification..... | 40 |
| 6.5.6 | Coincidence detection..... | 41 |
| 6.6 | Alarm systems and devices | 41 |
| 6.6.1 | General | 41 |
| 6.6.2 | Audible Alarms | 41 |
| 6.6.3 | Visual fire alarm devices..... | 42 |
| 6.7 | Control and indication | 42 |
| 6.7.1 | General | 42 |
| 6.7.2 | Location of control and indicating equipment..... | 42 |
| 6.7.3 | Repeat control and indication panels | 43 |
| 6.7.4 | Alarm location aids | 44 |
| 6.7.5 | Fire brigade panel | 44 |
| 6.8 | Power supplies | 44 |
| 6.8.1 | Power supply equipment..... | 44 |
| 6.8.2 | Main power source..... | 44 |
| 6.8.3 | Standby power source..... | 45 |
| 6.9 | Signals to a fire alarm receiving station | 45 |
| 6.10 | Signals to a fault warning receiving station | 45 |
| 6.11 | Other equipment or systems | 45 |
| 6.12 | Transmission paths | 46 |
| 6.12.1 | Cables..... | 46 |
| 6.12.2 | Radio linked systems..... | 48 |
| 6.13 | Protection against electromagnetic interference..... | 49 |
| 6.14 | Documentation | 49 |
| 6.15 | Responsibility | 50 |
| 6.16 | Qualifications | 50 |
| 7 | Installation..... | 50 |
| 7.1 | General | 50 |
| 7.2 | Siting of equipment..... | 50 |
| 7.2.1 | General | 50 |
| 7.2.2 | Hazardous areas..... | 50 |
| 7.3 | Cable installation | 50 |
| 7.3.1 | General | 50 |
| 7.3.2 | Cable identification..... | 50 |
| 7.3.3 | Multi-core cable restrictions | 50 |
| 7.3.4 | Cable joints and terminations..... | 51 |

| | | |
|--------|---|----|
| 7.4 | Radioactivity..... | 51 |
| 7.5 | Documentation..... | 51 |
| 7.6 | Responsibility..... | 51 |
| 7.7 | Qualifications..... | 51 |
| 8 | Initialization and configuration..... | 51 |
| 8.1 | General..... | 51 |
| 8.2 | Programming of the CIE..... | 51 |
| 8.3 | Documentation..... | 52 |
| 8.4 | Responsibility..... | 52 |
| 8.5 | Qualifications..... | 52 |
| 9 | Commissioning acceptance and verification..... | 52 |
| 9.1 | General..... | 52 |
| 9.2 | Commissioning..... | 52 |
| 9.3 | Verification (optional) | 54 |
| 9.4 | Responsibility..... | 54 |
| 9.5 | Qualifications..... | 54 |
| 10 | Third party approval | 54 |
| 10.1 | General..... | 54 |
| 10.2 | Approval procedures..... | 55 |
| 10.2.1 | General..... | 55 |
| 10.2.2 | Inspection and testing..... | 55 |
| 10.2.3 | Testing of operation..... | 55 |
| 10.3 | Documentation..... | 55 |
| 10.4 | Periodic inspection by an approving body | 55 |
| 10.4.1 | General..... | 55 |
| 10.4.2 | Documentation..... | 55 |
| 10.5 | Qualifications..... | 56 |
| 11 | User responsibilities..... | 56 |
| 11.1 | General..... | 56 |
| 11.2 | User scheduled maintenance..... | 56 |
| 11.2.1 | Daily user maintenance | 56 |
| 11.2.2 | Quarterly user maintenance | 57 |
| 11.2.3 | Annual user maintenance | 57 |
| 11.3 | Documentation..... | 57 |
| 12 | Maintenance..... | 57 |
| 12.1 | General..... | 57 |
| 12.2 | Maintenance routine..... | 57 |
| 12.2.1 | General..... | 57 |
| 12.2.2 | Prevention of unwanted fire signals to the fire and rescue service during maintenance..... | 57 |
| 12.2.3 | Prevention of unwanted activation during routine testing..... | 58 |
| 12.2.4 | Precautions during maintenance | 58 |
| 12.3 | Corrective maintenance..... | 58 |
| 12.4 | Spares | 58 |
| 12.5 | Documentation..... | 59 |
| 12.6 | Responsibility..... | 59 |
| 12.7 | Qualifications..... | 59 |
| 13 | Modification of an installed system..... | 59 |
| 13.1 | General..... | 59 |
| 13.2 | Third party approval | 59 |

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

| | | |
|---------|---|----|
| 13.3 | Extent of compliance | 59 |
| 13.4 | Documentation | 59 |
| 13.5 | Responsibility | 59 |
| 13.6 | Qualifications | 59 |
| 14 | Operation of other fire protection systems..... | 60 |
| 14.1 | General | 60 |
| 14.2 | Responsibility | 60 |
| 15 | Applications in special risks | 60 |
| 15.1 | General | 60 |
| 15.2 | Electronic data processing areas | 61 |
| 15.3 | High-rack warehouses | 61 |
| 15.3.1 | General | 61 |
| 15.3.2 | Aspirating smoke detection | 61 |
| 15.3.3 | Other detection..... | 61 |
| 15.4 | Atrium and high ceiling areas | 62 |
| 15.5 | Hazardous areas..... | 62 |
| 15.6 | Outdoor areas | 62 |
| 15.7 | High value risks..... | 62 |
| 15.8 | Responsibility | 63 |
| 16 | Integrated systems..... | 63 |
| 17 | Hierarchical and networked systems..... | 63 |
| Annex A | (informative) False alarms | 65 |
| A.1 | Causes of false alarms | 65 |
| A.2 | Vulnerability of various detector types..... | 65 |
| A.2.1 | Smoke detectors..... | 65 |
| A.2.2 | Heat detectors..... | 66 |
| A.2.3 | Flame detectors..... | 66 |
| A.3 | Possible preventative measures | 66 |
| A.3.1 | Multi-sensor detectors..... | 66 |
| A.3.2 | Pre-alarm warnings | 66 |
| A.3.3 | Dependency on more than one alarm signal Coincidence detection..... | 67 |
| A.3.4 | Activity related systems | 67 |
| A.3.4.1 | General | 67 |
| A.3.4.2 | Pre-transmission confirmation | 67 |
| A.4 | Investigation of false alarms..... | 68 |
| Annex B | (informative) Model documents | 70 |
| Annex C | (informative) Model list of fire loadings for different cable types | 76 |
| Annex D | (normative) Maintenance routine | 82 |
| D.1 | Maintenance works..... | 82 |
| D.2 | Inspection and servicing confirmation..... | 86 |
| Annex E | (informative) Commissioning checklist | 87 |

Annex F (informative) Test fires..... 89
Bibliography..... 90

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

European foreword

This document (CEN/TS 54-14:2018) has been prepared by Technical Committee CEN/TC 72 “Fire detection and fire alarm systems”, the secretariat of which is held by BSI.

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 document supersedes CEN/TS 54-14:2004.

Compared to CEN/TS 54-14:2004, the following main changes have been made:

- all facts and figures of Annex A have been transferred into the main text and modernized;
- Table A.1 was modified to incorporate new technologies;
- new detector technologies e.g. multi sensor detectors or radio-linked detectors were incorporated;
- new requirements for cabling;
- all requirements for certification were eliminated;
- Annex D: Maintenance routine is new;
- Annex E: Commissioning checklist is new.

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;*

CEN/TS 54-14:2018 (E)

- *Part 17: Short circuit isolators;*
- *Part 18: Input/output devices;*
- *Part 20: Aspirating smoke detectors;*
- *Part 21: Alarm transmission and fault warning routing equipment;*
- *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].*

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Guidelines and standards for the planning, design, installation, commissioning, use and maintenance of a fire detection and fire alarm system are published by many different organizations within Europe.

This document is intended as a template to be used in the drafting, review and revision of any such national standards and guidelines. It is intended that this technical specification will assist in the harmonization of practice and standards of fire detection and fire alarm systems throughout Europe.