

## საქართველოს სტანდარტი

---

ხანძრის აღმოჩენისა და სახანძრო განგაშის სისტემები - ნაწილი 16: ხმოვანი  
განგაშის მართვა და მიმთითებელი აღჭურვილობა

საქართველოს სტანდარტებისა და მეტროლოგიის  
ეროვნული სააგენტო  
თბილისი

## სსტ ენ 54-16:2008/2013

### საინფორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2013 წლის 3 დეკემბრის № 89 განკარგულებით

3 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 54-16:2008 „ხანძრის აღმოჩენისა და სახანძრო განგაშის სისტემები - ნაწილი 16: ხმოვანი განგაშის მართვა და მიმთითებელი აღჭურვილობა“

#### 4 პირველად

5 რეგისტრირებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2013 წლის 3 დეკემბერი №268-1.3-5632

წინამდებარე სტანდარტის სრული ან ნაწილობრივი აღწარმოება, ტირაჟირება და გავრცელება საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს ნებართვის გარეშე არ დაიშვება

English Version

## Fire detection and fire alarm systems - Part 16: Voice alarm control and indicating equipment

Systèmes de détection et d'alarme incendie - Partie 16:  
Élément central du système d'alarme incendie vocale

Brandmeldeanlagen - Teil 16: Sprachalarmzentralen

This European Standard was approved by CEN on 20 January 2008.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

**Contents**

Page

Foreword.....4

Introduction .....6

1 Scope .....7

2 Normative references .....7

3 Terms, definitions and abbreviations .....8

3.1 Terms and definitions .....8

3.2 Abbreviations .....10

4 General requirements.....11

4.1 General.....11

4.2 Combined VACIE and CIE .....11

4.3 Power supply.....11

5 General requirements for indications.....11

5.1 Display and functional conditions .....11

5.2 Indication display.....12

5.3 Indication on alphanumeric displays.....12

5.4 Indication of the supply of power .....12

5.5 Additional indications .....12

6 The quiescent condition .....12

7 The voice alarm condition .....12

7.1 Reception and processing of fire signals .....12

7.2 Indication of the voice alarm condition .....13

7.3 Audible warning (option with requirements) .....13

7.4 Delays to entering the voice alarm condition (option with requirements) .....13

7.5 Phased evacuation (option with requirements).....13

7.6 Silencing of the voice alarm condition .....13

7.7 Reset of the voice alarm condition .....14

7.8 Output to fire alarm devices (option with requirements) .....14

7.9 Voice alarm condition output (option with requirements) .....14

8 Fault warning condition .....14

8.1 Reception and processing of fault signals .....14

8.2 Indication of faults in specified functions.....15

8.3 Indication of faults related to the transmission path to the CIE (option with requirements) .....16

8.4 Indication of faults related to voice alarm zones (option with requirements).....16

8.5 System fault.....16

8.6 Audible indication.....16

8.7 Reset of fault indications .....16

8.8 Transmission of the fault warning condition.....16

9 Disablement condition (option with requirements).....17

9.1 General requirements.....17

9.2 Indication of the disabled condition .....17

9.3 Indication of specific disablements .....17

9.4 Disablements and their indication .....17

9.5 Transmission of the disablement condition .....17

10 Voice alarm manual control (option with requirements) .....18

10.1 General requirements.....18

10.2 Indication of the voice alarm zones in an activated condition .....18

10.3 Indication of the voice alarm zones in fault condition.....18

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

10.4	Indication of the voice alarm zones in disablement condition .....	18
11	Interface to external control device(s) (option with the requirements) .....	18
12	Emergency microphone(s) (option with requirements) .....	19
13	Design requirements .....	19
13.1	General requirements and manufacturer's declaration .....	19
13.2	Documentation .....	20
13.3	Mechanical design requirements .....	20
13.4	Electrical and other design requirements .....	21
13.5	Integrity of transmission paths .....	21
13.6	Accessibility of indications and controls .....	21
13.7	Indications by means of light emitting indicators .....	22
13.8	Indications on alphanumeric displays .....	22
13.9	Indication colours .....	22
13.10	Audible indications .....	23
13.11	Indicator testing .....	23
13.12	Audio performance .....	23
13.13	Message store(s) .....	25
13.14	Redundant power amplifiers (option with requirements) .....	25
14	Additional design requirements for software controlled VACIE .....	25
14.1	General requirements and manufacturer's declarations .....	25
14.2	Software documentation .....	25
14.3	Software design .....	26
14.4	Program monitoring (see also Annex C) .....	26
14.5	The storage of programs and data (see also Annex C) .....	27
14.6	Monitoring of memory contents .....	27
15	Marking .....	27
16	Tests .....	28
16.1	General .....	28
16.2	Functional tests .....	29
16.3	Audio performance and environmental tests .....	31
16.4	Output power .....	32
16.5	Signal-to-noise ratio .....	34
16.6	Frequency response of VACIE without microphone(s) .....	35
16.7	Frequency response of VACIE with microphone(s) .....	36
16.8	Cold (operational) .....	37
16.9	Damp heat, steady state (operational) .....	38
16.10	Damp heat, steady state (endurance) .....	39
16.11	Impact (operational) .....	40
16.12	Vibration, sinusoidal (operational) .....	41
16.13	Vibration, sinusoidal (endurance) .....	42
16.14	Supply voltage variation (operational) .....	42
16.15	Electromagnetic Compatibility (EMC), Immunity tests (operational) .....	43
Annex A (informative)	Explanation of access level .....	45
Annex B (informative)	Optional functions with requirements and alternatives .....	47
Annex C (informative)	Design requirements for software controlled VACIE .....	49
Annex D (informative)	General information about voice alarm systems .....	50
Annex E (informative)	Interface between the VACIE and the CIE .....	53
Annex F (informative)	Common indications, controls and outputs when the VACIE and the CIE are combined .....	54
Annex ZA (informative)	Clauses of this European Standard addressing the provisions of the EU Construction Products Directive (89/106/EEC) .....	56
Bibliography	.....	65

## Foreword

This document (EN 54-16:2008) has been prepared by Technical Committee CEN/TC 72 "Fire detection and fire alarm systems", the secretariat of which is held by BSI.

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 September 2008, and conflicting national standards shall be withdrawn at the latest by March 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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, see informative Annex ZA, which is an integral part of this document.

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 light beam*
- *Part 13: Compatibility assessment of system components*
- *Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance*
- *Part 15: Point detectors using a combination of detected phenomena*
- *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 routine equipment*

- *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*
- *Part 26: Point fire detectors using carbon monoxide sensors<sup>1)</sup>*
- *Part 27: Duct smoke detectors<sup>1)</sup>*

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

---

1) Under preparation.

## Introduction

A voice alarm system used in a fire detection and fire alarm system provides, manually and/or automatically, an audible fire alarm signal within the building.

Such a fire alarm voice alarm system will require voice alarm control and indicating equipment (VACIE) (see 3.1.1) to control the alarm signal(s) and the fire alarm voice message(s). The voice alarm control and indicating equipment may be a separate unit or may be physically combined with the fire detection and fire alarm control and indicating equipment (CIE as referenced in EN 54-2).

This part of EN 54 follows closely the format and requirements of EN 54-2 and is drafted on the basis of mandatory functions which are to be provided on all voice alarm control and indicating equipment, 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.

This European Standard does not specify requirements for components of the VACIE as separate parts; they are tested as part of the voice alarm control and indicating equipment as a whole.

Each optional function is included as a separate entity, with its own set of associated requirements, in order to permit voice alarm 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.

Although this European Standard does not cover emergency alarm systems for non-fire applications, it may be used as a basis for the assessment of the control and indication equipment for such systems.