



National Standards Authority of Ireland
Údarás um Chaighdeáin Náisiúnta na hÉireann

IRISH STANDARD

I.S. EN 54-16:2008

ICS 13.220.20

National Standards
Authority of Ireland
Northwood, Dublin 9
Ireland

Tel: +353 1 807 3800
Fax: +353 1 807 3838
<http://www.nsai.ie>

Sales

<http://www.standards.ie>

**FIRE DETECTION AND FIRE ALARM
SYSTEMS - PART 16: VOICE ALARM
CONTROL AND INDICATING EQUIPMENT**

*This Irish Standard was
published under the authority
of the National Standards
Authority of Ireland and
comes into effect on:
3 June 2008*

**NO COPYING WITHOUT NSAI
PERMISSION EXCEPT AS
PERMITTED BY COPYRIGHT
LAW**

© NSAI 2008

Price Code S

Údarás um Chaighdeáin Náisiúnta na hÉireann

This page is intentionally left BLANK.

I.S. EN 54-16:2008

EUROPEAN STANDARD

EN 54-16

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2008

ICS 13.220.20

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

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 sensors¹⁾*
- *Part 27: Duct smoke detectors¹⁾*

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.

1 Scope

This European Standard specifies requirements, methods of test and performance criteria for voice alarm control and indicating equipment for use in fire detection and fire alarm systems installed in buildings, where the alarm signal is in the form of tone(s) or voice message(s), or both.

It also provides for the evaluation of conformity of the equipment to the requirements of this European Standard.

NOTE The overall requirements of a voice alarm system, especially concerning audibility and intelligibility, are not covered in this part of EN 54. The manufacturer should consider requirements of an overall system that may affect the equipment design. Such system requirements may be specified in another part of EN 54, in national legislation, codes and standards or in contractual documents.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 54-1:1996, *Fire detection and fire alarm systems — Part 1: Introduction*

EN 54-2:1997, *Fire detection and fire alarm systems — Part 2: Control and indicating equipment*

EN 54-2:1997/A1:2006, *Fire detection and fire alarm systems — Part 2: Control and indicating equipment*

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 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 2-1: Tests — Test A: Cold (IEC 60068-2-1:2007)*

EN 60068-2-6:1995, *Environmental testing — Part 2-6: Tests — Test Fc: Vibration (sinusoidal) (IEC 60068-2-6:1995 + Corrigendum 1995)*

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

EN 60068-2-75:1997, *Environmental testing — Part 2-75: 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 60268-4:2004, *Sound system equipment — Part 4: Microphones (IEC 60268-4:2004)*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-