



# SLOVENSKI STANDARD

## SIST EN 54-13:2005

01-september-2005

---

### Sistemi za odkrivanje in javljanje požara ter alarmiranje – 13. del: Ocenjevanje združljivosti sestavnih delov sistemov

Fire detection and fire alarm systems - Part 13: Compatibility assessment of system components

Brandmeldeanlagen - Teil 13: Bewertung der Kompatibilität von Systembestandteilen

Systemes de détection et d'alarme incendie - Partie 13 : Évaluation de la compatibilité des composants d'un système

**iTeh STANDARD PREVIEW**

(standards.itteh.ai)

[SIST EN 54-13:2005](https://standards.itteh.ai/catalog/standards/sist/fb57263-9fef-48e7-8306-875d9ca26fe/sist-en-54-13-2005)

Ta slovenski standard je istoveten z: **EN 54-13:2005**

---

#### **ICS:**

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

**SIST EN 54-13:2005**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 54-13:2005

<https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-873d9ea26ff8/sist-en-54-13-2005>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 54-13**

May 2005

ICS 13.220.20

English version

## Fire detection and fire alarm systems - Part 13: Compatibility assessment of system components

Systèmes de détection et d'alarme incendie - Partie 13 :  
Évaluation de la compatibilité des composants d'un  
système

Brandmeldeanlagen - Teil 13: Bewertung der Kompatibilität  
von Systembestandteilen

This European Standard was approved by CEN on 28 February 2005.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 54-13:2005](https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-873d9ea26ff/sist-en-54-13-2005)

<https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-873d9ea26ff/sist-en-54-13-2005>



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

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

**Contents**

Page

Foreword.....	3
Introduction .....	4
1 Scope.....	5
2 Normative references .....	5
3 Terms, definitions and abbreviations .....	5
3.1 Terms and definitions .....	5
4 Requirements.....	7
4.1 Compliance .....	7
4.2 Basic system requirements .....	7
4.3 Networked systems .....	7
4.4 Components.....	8
4.5 Transmission path(s) .....	9
4.6 Input and output devices linked to a fire protection system.....	9
4.7 Documentation .....	10
5 Assessment methods and tests .....	11
5.1 General requirements.....	11
5.2 General test requirements.....	12
5.3 Functional test for compatibility .....	12
5.4 Functional test for connectability .....	15
5.5 Electromagnetic compatibility tests.....	16
Annex A (normative) Functions of a FDAS .....	17
Annex B (informative) Classification of functions of the FDAS.....	18
Annex C (informative) Example methodology for theoretical analysis.....	20

## Foreword

This document (EN 54-13:2005) 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 November 2005, and conflicting national standards shall be withdrawn at the latest by May 2007.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

This document 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 document and other standards of the EN 54 series is given in Annex A of EN 54-1:1996.

EN 54-1 provides additional information about the components performing those functions that are listed in Annex A of this document.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 54-13:2005  
<https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-873d9ea26ffe/sist-en-54-13-2005>

**EN 54-13:2005 (E)****Introduction**

The fire detection function is to detect a fire at the earliest practicable moment, and to give signals and indications so that appropriate action can be taken.

The fire alarm function is to give, at least, audible and/or visible signals to the occupants of a building who may be at risk from fire.

A fire detection and fire alarm system may combine the functions of detection and alarm in a single system, and typically consists of a number of inter-linked components including automatic fire detectors, manual call points and alarm sounders. These components are connected to control and indicating equipment by means of one or more transmission paths. All system components, including the control and indicating equipment, are also directly or indirectly connected to a power supply.

A fire detection and fire alarm system may also be linked to remote fault and fire alarm monitoring stations, and to fire protection and/or building management systems. However these systems are not considered as part of the fire detection and fire alarm system.

It is necessary that all the components constituting the fire detection and fire alarm system are compatible or connectable, and that requirements relating to the performance of the overall system are fulfilled.

Differentiation is made between components classified as components type 1 and other components classified as components type 2.

System requirements are also included for those fire detection and fire alarm systems that are linked to fire protection and/or other systems (e.g. building management systems).

## 1 Scope

This document specifies the requirements for compatibility and connectability assessment of system components that either comply with the requirements of EN 54 or with a manufacturer's specification where there is no EN 54 standard. This document only includes system requirements when these are necessary for compatibility assessment.

This document also specifies requirements for the integrity of the fire detection and fire alarm system when connected to other systems.

This document does not specify the manner in which the system is designed, installed and used in any particular application.

This document recognizes that it is not practical to assess the compatibility or connectability of components in all possible configurations. Methods of assessment are specified to reach an acceptable degree of confidence within pre-determined operational and environmental conditions.

This document specifies requirements related to compatibility and connectability assessment methods and tests for the system components.

This document is applicable to systems where the components are connected to control and indicating equipment and where the components are interconnected by electrical wires.

For fire detection and fire alarm systems that use other means of interconnection (for example optical fibre or radio frequency links), this document may be used as guidance.

NOTE Other European Standards are expected to cover the requirements of the other systems to which the fire detection and fire alarm system may be connected.

SIST EN 54-13:2005

## 2 Normative references

<https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-873d9ea26ffe/sist-en-54-13-2005>

The following referenced documents are indispensable for the application of this document. 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 50130-4, *Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder and social alarm systems*

EN 60068-1, *Environmental testing — Part 1: General and guidance (IEC 60068-1:1988 + Corrigendum 1998 + A1:1992)*

## 3 Terms, definitions and abbreviations

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 54-1:1996 and the following apply.

#### 3.1.1

##### **compatibility**

ability of a component type 1 to operate with control and indicating equipment:

**EN 54-13:2005 (E)**

- within the limits specified for each component;
- within the specified limits given by the relevant parts of EN 54 if available, or given by the manufacturer if not available;
- within specified configurations of systems

**3.1.2****component type 1**

device performing a function for the protection of life and/or property that is required by European or national guidelines or regulations

**3.1.3****component type 2**

device performing a function for the protection of life and/or property that is not required by European or national guidelines or regulations

EXAMPLE A printer used for listing fire events.

**3.1.4****configuration**

topological arrangement of components connected through transmission paths to control and indicating equipment

**3.1.5****connectability**

ability of component type 2 to operate without jeopardizing the performance of the fire detection and fire alarm system

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

**3.1.6****control and indicating equipment**

CIE

component of a fire detection and alarm system through which other components may be supplied with power (see EN 54-1)

[SIST EN 54-13:2005](https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-81219c026b13/sist-en-54-13-2005)

[https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-](https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-81219c026b13/sist-en-54-13-2005)

[81219c026b13/sist-en-54-13-2005](https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-81219c026b13/sist-en-54-13-2005)

**3.1.7****fire detection and fire alarm system**

FDAS

group of components including a CIE which, when arranged in (a) specified configuration(s), is capable of detecting and indicating a fire, and giving signals for appropriate action

**3.1.8****fire protection system**

FPS

group of devices that in combination are capable of automatically actuating measures to limit the effect of fire

EXAMPLE Compartmentation systems, smoke control systems and fixed firefighting systems.

**3.1.9****hierarchical system**

networked system in which one control and indicating equipment is designated as the main control and indicating equipment, and in which the main control and indicating equipment is able to:

- receive signals from and/or transmit signals to the control and indicating equipment of a subsystem;
- indicate the status of the control and indicating equipment of a subsystem



**3.1.10****input/output device**

device that is connected to a transmission path of a fire detection and fire alarm system and is used to receive and/or transmit information to, from or within the system

**3.1.11****networked system**

fire detection and fire alarm system in which more than one control and indicating equipment are interconnected and able to exchange information

**3.1.12****subsystem**

part of a hierarchical system which includes only one control and indicating equipment

**3.1.13****transmission path**

physical connection between the components (external to the housing of the components) used for the transmission of information and/or power

**4 Requirements****4.1 Compliance**

In order to comply with this standard, the system design and compatibility or connectability of its components shall meet the requirements of this clause. This shall be verified by assessment (5.1) with reference to the required documentation (4.7), shall be tested (if necessary) as described in 5.2 to 5.5 and shall meet the requirements of the tests.

**4.2 Basic system requirements** [SIST EN 54-13:2005](https://standards.itech.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-2020-020101010101)

System requirements can also be stated in national application guidelines (also known as codes of practice). Suppliers of components shall ensure that they:

- meet the requirements of this document;
- meet the requirements of the relevant part of EN 54;
- meet the requirements of the application guidelines of the countries where the components are intended to be placed on the market.

**4.2.1** The FDAS under consideration shall carry out fire detection functions identified in Annex A. All the different system configurations intended to be used shall be mentioned within the supplier documentation.

**4.2.2** If a function of a FDAS is shared with any other system, it shall not jeopardize the FDAS. Shared functions shall meet the most onerous requirements of the relevant specifications.

**4.2.3** If a non-FDAS function is performed by a component of a FDAS, this function shall not jeopardize the FDAS.

**4.3 Networked systems****4.3.1 General requirements**

**4.3.1.1** A system fault (as described in EN 54-2) in one CIE shall not affect more than this CIE and the associated components controlled by this CIE.

**EN 54-13:2005 (E)**

**4.3.1.2** A single fault on a transmission path connecting one CIE to another CIE shall not adversely affect the correct functioning of any part of the networked system.

**4.3.1.3** Means shall be provided for the indication of a fault on a transmission path connecting one CIE to another CIE.

**4.3.2 Specific requirements for hierarchical systems**

**4.3.2.1** A fire alarm condition on a CIE shall be indicated on the main CIE within 20 s.

**4.3.2.2** A fault warning condition on a CIE shall be indicated on the main CIE within 120 s.

**4.3.2.3** A fault or faults in a single transmission path connecting one or more CIE(s) to the main CIE shall not adversely affect the mandatory (as defined in EN 54-2) functions of the hierarchical system.

**4.3.2.4** A fault on a transmission path connecting a CIE to the main CIE shall be at least indicated on the main CIE.

**4.3.2.5** Where faults exist in more than one transmission path connecting one or more CIE(s) to the main CIE, it shall be clearly indicated on the main CIE which part(s) is (are) lost.

**4.3.2.6** The main CIE shall indicate at least general conditions (see conditions defined in EN 54-2).

EXAMPLE An example of a general condition is a fire condition at a subsystem CIE.

If detailed information is provided then it shall be consistent throughout the system.

EXAMPLE An example of provision of detailed information is a fire condition on a zone of a subsystem CIE.

**4.3.2.7** At the main CIE, it shall be possible to identify the subsystem from which the information originated.

**4.3.2.8** At the main CIE, it may be possible to operate either general manual controls or individual manual controls, but the result shall be identical to that achieved by the operation of these controls on the CIE of the subsystem.

NOTE Where faults exist in more than one transmission path connecting one or more CIE to the main CIE, the mandatory (as defined in EN 54-2) functions of the hierarchical system can be affected. In that case, it is preferable to connect the device type "E" (as defined in EN 54-1) directly to each CIE.

**4.3.3 Specific requirements for software**

Any software that is used for networking shall conform to EN 54-2:1997, Clause 13.

**4.4 Components****4.4.1 Classification**

**4.4.1.1** The components of the system are classified as component type 1 or component type 2, as defined in 3.1.2 and 3.1.3.

NOTE Annex A provides additional guidance.

**4.4.1.2** If a component includes one or more controls which perform functions described in EN 54-2 as being mandatory, or an optional function with requirements at the CIE, then the device shall be classified as a component type 1.

#### 4.4.2 Requirements

**4.4.2.1** To be compatible, components type 1 shall operate within the specified limits given by the relevant part of EN 54, within specified system configurations and within the limits specified for each component.

**4.4.2.2** Components type 1 that are not covered by a product standard shall conform to EN 54-1:1996, Clause 4, compliance. In addition, these components shall also conform to the EMC immunity characteristics of EN 50130-4.

**4.4.2.3** To be connectable, a component type 2 shall operate without jeopardizing the operation of the system.

**4.4.2.4** The operation of a remote control shall have the same effect as if the operation had been undertaken at the CIE.

#### 4.5 Transmission path(s)

**4.5.1** A single fault on a transmission path shall not affect another transmission path. If this is not the case, then all transmission paths adversely affected by this single fault shall be considered as a single transmission path.

**4.5.2** The facility (technical means) provided for minimizing the effect of a fault on a transmission path shall complete the restoration within 300 s.

**4.5.3** The consequence of a single interruption shall not be more serious than the consequence of a short circuit.

**4.5.4** A fault on a transmission path to any other system shall not adversely affect the correct functioning of the FDAS.

[SIST EN 54-13:2005](https://standards.iteh.ai/catalog/standards/sist/fab57263-9fef-48e7-8306-877d9ca26ffe/sist-en-54-13-2005)

NOTE Application guidelines may require that the consequences of a fault (for example a short circuit or an interruption) on a transmission path are limited.

#### 4.6 Input and output devices linked to a fire protection system

##### 4.6.1 General requirements

Input and output devices linked to a fire protection system shall be considered as component type 1.

The documentation shall include the specifications of the input/output signals of each input/output device.

NOTE 1 The transmission path between the systems is monitored either by the FDAS or by the FPS. Details should be included within the documentation.

NOTE 2 The FDAS includes the whole of the input device transferring signals from the FPS to the fire detection and fire alarm system and the whole of the output device transferring signals from the fire detection and fire alarm system to the fire protection system. (Figure 1 shows this arrangement).