



SLOVENSKI STANDARD

SIST EN 54-4:1997

01-december-1997

Sistemi za odkrivanje in javljanje požara - 4. del: Oprema za napajanje

Fire detection and fire alarm systems - Part 4: Power supply equipment

Brandmeldeanlagen - Teil 4: Energieversorgungseinrichtungen

Systemes de détection et d'alarme incendie - Partie 4: Equipement d'alimentation électrique

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ICS:

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

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EUROPEAN STANDARD
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EN 54-4

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ICS 13.220.20

Descriptors: fire equipment, fire detection systems, automatic equipment, safety devices, electric power supply, specifications, tests, inspection, testing conditions, marking

English version

Fire detection and fire alarm systems - Part 4: Power supply equipment

Systèmes de détection et d'alarme incendie - Partie 4:
Équipement d'alimentation électrique

Brandmeldeanlagen - Teil 4:
Energieversorgungseinrichtungen

This European Standard was approved by CEN on 25 December 1996.

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

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

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Foreword

This European Standard has been prepared by 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.

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Introduction

This European Standard is drafted on the basis of functions which are to be provided on all power supply equipments. The power supply equipment may have its own cabinet, or may be housed with other equipment of the fire detection and fire alarm system, such as the control and indicating equipment of EN 54-2. A fire detection and fire alarm system may use more than one power supply equipment.

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1 Scope

This European Standard specifies requirements, methods of test and performance criteria for power supply equipment (see component L of figure 1 of EN 54-1) of fire detection and fire alarm systems installed in buildings.

NOTE: Power supply equipment with special characteristics, developed for particular applications, is not necessarily the subject of this standard and may require further tests.

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
	Part 1:199x Introduction
	Part 2:199x Control and indicating equipment.
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
68-2-3:1969+	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
IEC 801	Electromagnetic compatibility for industrial-process measurement and control equipment Part 2:1991: Method of evaluating susceptibility to electrostatic charge 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
IEC 950:1991:	Safety of information technology equipment including electrical business equipment.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this European Standard the definitions given in EN 54-1 apply together with the following:

3.1.1 float voltage: The voltage which when applied to the battery will maintain the battery in a fully charged state. The float voltage is specified by the battery manufacturer.

3.1.2 final voltage: The lowest recommended voltage to which a battery should be discharged. The final voltage is specified by the battery manufacturer.

3.2 Abbreviations

For the purposes of this European Standard the following abbreviations apply:

p.s.e.: power supply equipment (L of figure 1 of EN 54-1)

c.i.e.: control and indicating equipment (B of figure 1 of EN 54-1)

4 General requirements

4.1 Compliance

In order to comply with this standard the p.s.e. shall meet the requirements of clauses 4, 5, 6, 7 and 8, shall be tested as described in clause 9 and shall meet the requirements of the tests.

4.2 Power sources

There shall be at least two power sources for the power supply of a fire detection and fire alarm system; the main power source and the standby power source. The main power source shall be designed to operate from the public electricity supply or an equivalent system.

At least one standby power source shall be a rechargeable battery.

The p.s.e. shall include charging equipment to charge the battery and maintain it in a fully charged state.

Each power source, on its own, shall be capable of operating those parts of the fire detection and fire alarm system for which it is intended.

When the main power source is available it shall be the exclusive source of power to the fire detection and fire alarm system, other than for currents associated with battery monitoring.

If the main power source fails, then the p.s.e. shall be automatically switched over to a standby power source. When the main power source is restored, the p.s.e. shall be automatically switched back.

If the p.s.e. is integrated within other equipment of the fire detection and fire alarm system, then the switching from one power source to the other shall not cause any change in status or indications other than those relating to the power supply.

If the p.s.e. is separated from other equipment of the fire detection and fire alarm system, and the switching from one power source to the other causes an interruption in supply of power, then the duration of the interruption shall be specified in the manufacturer's data.

Failure of one of the power sources shall not cause the failure of any other power source or the failure of the supply of power to the system.

NOTE: The compatibility of the separated p.s.e. with the other equipment, for example, the c.i.e., will be dealt with in EN 54-13 "System Requirements" (to be published).

5 Functions

5.1 Power supply from the main power source

When operated from the main power source, the p.s.e.

- a) shall be capable of operating in accordance with its specification given in the manufacturer's data irrespective of the condition of the standby power source. This includes any charge condition of the battery, or open circuit or short circuit of the connection to the battery.
- b) shall additionally be able to supply any required charging current for the battery or batteries
- c) may allow battery charging to be limited or interrupted when the p.s.e is delivering a short duration maximum output load (see note to table 1)

5.2 Power supply from the standby power source (battery)

5.2.1 When operated from the standby power source the p.s.e. shall be capable of operating in accordance with the specification given in the manufacturer's data, irrespective of the condition of the main power source.

NOTE: The standby and alarm periods required in any specific application should comply with the Application Guidelines.

5.2.2 The battery shall

- d) be rechargeable;
- e) be suitable to be maintained in a fully charged state;
- f) be constructed for stationary use;
- g) be marked with type designation and date of manufacture.

If the battery is mounted in a cabinet which houses other fire detection and fire alarm equipment, then it shall be of the sealed type and shall be mounted in accordance with the manufacturer's data.

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5.3 Charger

5.3.1 The charger shall be designed and rated so that

- h) the battery can be charged automatically;
- i) a battery discharged to its final voltage can be recharged to at least 80 % of its rated capacity within 24 hours and to its rated capacity within another 48 hours;
- j) the charging characteristics are within the battery manufacturer's specification over the ambient temperature range of the battery.

5.3.2 Except for currents associated with battery monitoring, the battery shall not discharge through the charger when the charging voltage is below the battery voltage.

5.4 Faults

The p.s.e. shall be capable of recognising and signalling the following faults:

- k) loss of the main power source, within 30 minutes of the occurrence;
- l) loss of the standby power source, within 15 minutes of the occurrence;
- m) reduction of the battery voltage to less than 0,9 of the final voltage, within 30 minutes of the occurrence;
- n) loss of the battery charger, within 30 minutes of the occurrence.

If the p.s.e. is separately housed from the c.i.e. then at least a fault output common to the above-mentioned faults shall be provided.

If the p.s.e. is housed within the cabinet of the c.i.e., then the above-mentioned faults shall be indicated in accordance with clause 8 of EN 54-2 either on the c.i.e. or on the p.s.e. itself.

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