

SLOVENSKI STANDARD

SIST EN 60950:1996/A1:1996

01-marec-1996

Safety of information technology equipment, including electrical business equipment

Safety of information technology equipment

Sicherheit von Einrichtungen der Informationstechnik

Sécurité des matériels de traitement de l'information

STANDARD PREVIEW
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Ta slovenski standard je istoveten z: EN 60950:1992/A1:1993

SIST EN 60950:1996/A1:1996
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ICS:

35.020

Informacijska tehnika in
tehnologija na splošno

Information technology (IT) in
general

SIST EN 60950:1996/A1:1996

en

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EUROPEAN STANDARD

EN 60950/A1

NORME EUROPEENNE

EUROPÄISCHE NORM

January 1993

UDC 681.3:651.2:620.1:614.8

Descriptors: Information technology equipment, business equipment,
personal computer, safety

Amendment A1 to the English version of EN 60950

Safety of information technology equipment,
including electrical business equipment
(IEC 950:1991/A1:1992)

Sécurité des matériels de
traitement de l'information, y
compris les matériels de bureau
électriques
(CEI 950:1991/A1:1992)

Sicherheit von Einrichtungen der
Informationstechnik,
einschließlich
elektrischer Büromaschinen
(IEC 950:1991/A1:1992)

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This amendment A1 modifies the European Standard EN 60950:1992. It was approved by CENELEC on 1992-12-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

FOREWORD

At the request of the 71st Technical Board of CENELEC, amendment 1:1992 to the International Standard IEC 950:1991 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in May 1992 for acceptance as a European Standard.

The text of the International Standard was approved by CENELEC as amendment A1 to EN 60950 on 9 December 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-09-01
- latest date of withdrawal of conflicting national standards (dow) 1995-03-01

For products which have complied with EN 60950:1992 before 1995-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2000-03-01.

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ENDORSEMENT NOTICE
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The text of amendment 1:1992 to the International Standard IEC 950:1991 was approved by CENELEC as an amendment to the European Standard without any modification.

NORME INTERNATIONALE INTERNATIONAL STANDARD

**CEI
IEC
950**

AMENDEMENT 1
AMENDMENT 1

1992-02

Amendement 1

**Sécurité des matériels de traitement
de l'information, y compris les matériels
de bureau électriques**

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Amendment 1

SIST EN 60950:1996/A1:1996

**Safety of information technology equipment,
including electrical business equipment**

*Les feuilles de cet amendement sont à insérer dans
la Publication 950 (1991)*

*The sheets contained in this amendment are to be
inserted in Publication 950 (1991)*

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Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembé Genève, Suisse



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INSTRUCTIONS POUR L'INSERTION DES NOUVELLES PAGES ET FEUILLES DE CARACTÉRISTIQUES DANS LA PUBLICATION

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Retirer la page de titre et la page 2, les pages 39 à 42, 49 à 52, 55 à 58, 129 à 134, 213 à 216, 231 à 232, 291 à 294 et insérer la nouvelle page de titre et la page 2, et pages 39 à 42, 49 à 52, 55 à 58, 129 à 134, 213 à 216, 231 à 232 et 291 à 294.

Remove the title page and page 2, pages 39 to 42, 49 to 52, 55 to 58, 129 to 134, 213 to 216, 231 to 232, 291 to 294 and insert new title page and page 2, and pages 39 to 42, 49 to 52, 55 to 58, 129 to 134, 213 to 216, 231 to 232 and 291 to 294.

PRÉFACE

Cet amendement a été établi par le Comité d'Etudes n° 74 de la CEI: Sécurité des matériels de traitement de l'information y compris les matériels de bureau électriques et les matériels de télécommunication.

Le texte de cet amendement est issu des documents suivants:

Règle des Six Mois	Rapports de vote
74(BC)197	74(BC)202
74(BC)198	74(BC)203
74(BC)199	74(BC)204
74(BC)200	74(BC)205

Les rapports de vote indiqués dans le tableau ci-dessus donnent toute information sur le vote ayant abouti à l'approbation de cet amendement.

Le trait vertical dans la marge indique l'endroit de la modification du texte par rapport à la version originale. Le numéro situé dans le trait se réfère au numéro de l'amendement.

NOTE - Les modifications apportées aux pages 130, 131, 216 et 232 sont les corrections des erreurs qui s'étaient glissées lors de l'impression de la publication originale.

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PREFACE

This amendment has been prepared by IEC Technical Committee No. 74: Safety of information technology equipment including electrical business equipment and telecommunication equipment.

The text of this amendment is based on the following documents:

Six Months' Rule	Reports on Voting
74(CO)197	74(CO)202
74(CO)198	74(CO)203
74(CO)199	74(CO)204
74(CO)200	74(CO)205

Full information on the voting for the approval of this standard can be found in the Voting Reports indicated in the above table.

A vertical line in the margin shows where the text has been modified compared to the original version. The number affixed to the vertical line indicates the amendment number.

NOTE - The changes indicated by a vertical line in the margin, on pages 130, 131, 216 and 232 are due to typographical errors made at the time of printing the second edition of IEC 950.

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
950**

Deuxième édition
Second edition
1991-09

Modifiée selon Amendement 1 (1992)
Amended in accordance with amendment 1 (1992)

**Sécurité des matériels de traitement
de l'information, y compris les matériels
de bureau électriques**

iTeh STANDARD PREVIEW

**Safety of information technology equipment,
including electrical business equipment**

[SIST EN 60950:1996/A1:1996](https://standards.iteh.ai/catalog/standards/sist/d893463d-d9bd-4178-a409-d9801be47e64/sist-en-60950-1996-a1-1996)

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1.2.9.4 DOUBLE INSULATION: Insulation comprising both BASIC INSULATION and SUPPLEMENTARY INSULATION.

1.2.9.5 REINFORCED INSULATION: A single insulation system which provides a degree of protection against electric shock equivalent to DOUBLE INSULATION under the conditions specified in this standard.

NOTE - The term "insulation system" does not imply that the insulation has to be in one homogeneous piece. It may comprise several layers which cannot be tested as SUPPLEMENTARY or BASIC INSULATION.

1.2.9.6 WORKING VOLTAGE: The highest voltage to which the insulation under consideration is, or can be, subjected when the equipment is operating at its RATED VOLTAGE under conditions of normal use.

NOTE - See 2.2.7.

1.2.9.7 TRACKING: The progressive formation of conducting paths on the surface of a solid insulating material, due to the combined effects of electric stress and electrolytic contamination on this surface.

1.2.10 Creepage distances and clearances

1.2.10.1 CREEPAGE DISTANCE: The shortest path between two conductive parts, or between a conductive part and the BOUNDING SURFACE of the equipment, measured along the surface of the insulation.

1.2.10.2 CLEARANCE: The shortest distance between two conductive parts, or between a conductive part and the BOUNDING SURFACE of the equipment, measured through air.

1.2.10.3 BOUNDING SURFACE: The outer surface of the ELECTRICAL ENCLOSURE, considered as though metal foil were pressed into contact with accessible surfaces of insulating material.

1.2.11 Components

1.2.11.1 SAFETY ISOLATING TRANSFORMER: A transformer in which windings supplying SELV CIRCUITS are isolated from other windings in such a way that an insulation breakdown either is unlikely or does not cause a hazardous condition on SELV windings.

1.2.11.2 THERMOSTAT: A cycling temperature-sensing control, which is intended to keep a temperature between two particular values under normal operating conditions and which may have provision for setting by the OPERATOR.

1.2.11.3 TEMPERATURE LIMITER: A temperature-sensing control which is intended to keep a temperature below or above one particular value during normal operating conditions and which may have provision for setting by the OPERATOR.

NOTE - A TEMPERATURE LIMITER may be of the automatic reset or of the manual reset type. It does not make the reverse operation during the normal duty cycle of the equipment.

1.2.11.4 THERMAL CUT-OUT: A temperature-sensing control intended to operate under abnormal operating conditions and which has no provision for the OPERATOR to change the temperature setting.

NOTE - A THERMAL CUT-OUT may be of the automatic reset or of the manual reset type.

1.2.11.5 THERMAL CUT-OUT, AUTOMATIC RESET: A THERMAL CUT-OUT which automatically restores the current after the relevant part of the equipment has cooled down sufficiently.

1.2.11.6 THERMAL CUT-OUT, MANUAL RESET: A THERMAL CUT-OUT which requires resetting by hand, or replacement of a part, in order to restore the current.

1.2.11.7 INTERCONNECTING CABLES: Cables that are external to the equipment and that are used to electrically connect accessories to units of Information Technology Equipment, to interconnect units in a system or to connect units to a TELECOMMUNICATION NETWORK; such cables may carry any type of circuit from one unit to another.

1.2.12 Power distribution

1.2.12.1 TN POWER SYSTEM: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that point by protective earth conductors. Three types of TN POWER SYSTEMS are recognized according to the arrangement of neutral and protective earth conductors, as follows:

- TN-S system: having separate neutral and protective earth conductors throughout the system;
- TN-C-S system: in which neutral and protective functions are combined in a single conductor in a part of the system;
- TN-C system: in which neutral and protective functions are combined in a single conductor throughout the system.

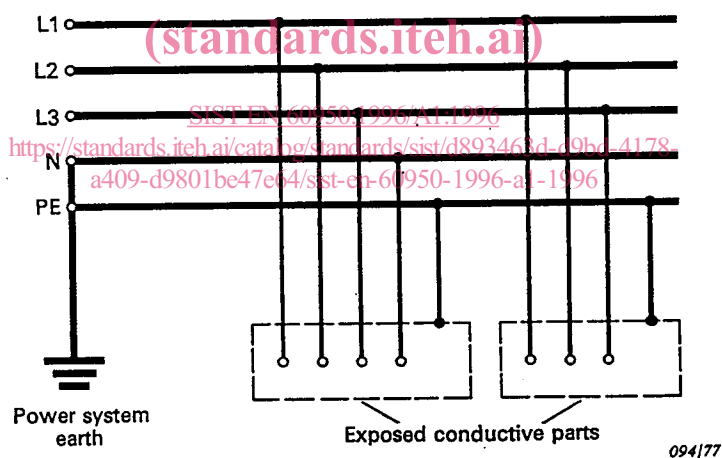


Figure 1 - Example of TN-S power system

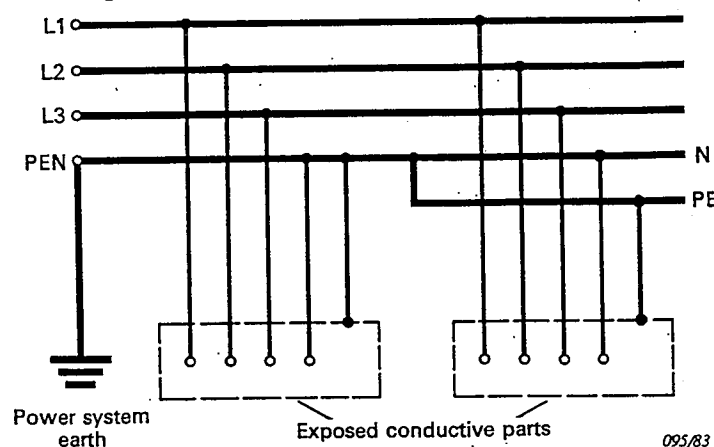


Figure 2 - Example of TN-C-S power system

1.3 General requirements

1.3.1 Equipment shall be so designed and constructed that, under all conditions of normal use and under a likely fault condition, it protects against risk of personal injury from electric shock and other hazards, and against serious fire originating in the equipment, within the meaning of this standard.

Unless otherwise specified, compliance is checked by inspection and by carrying out all the relevant tests.

NOTES

1 Where the equipment involves safety situations not specifically covered, the design should provide a level of safety not less than that generally afforded by this standard.

2 The need for additional detailed requirements to cope with a new situation should be brought promptly to the attention of the appropriate committee.

1.3.2 Sufficient information shall be provided to the user concerning any condition necessary to ensure that, when used as prescribed by the manufacturer, the equipment will not present a hazard within the meaning of this standard (see 1.7.2).

Compliance is checked by inspection.

1.3.3 Equipment is classified according to its protection from electric shock as:

CLASS I, or
CLASS II, or
CLASS III.

NOTE - Equipment containing ELY CIRCUITS or parts at HAZARDOUS VOLTAGE is Class I or Class II. There are no requirements in this standard for protection against electric shock for CLASS III EQUIPMENT.

1.4 General conditions for tests

1.4.1 The requirements and tests detailed in this standard shall be applied only if safety is involved. If it is evident from the design and construction of the equipment that a particular test is not applicable, the test shall not be made.

In order to establish whether or not safety is involved, the circuits and construction shall be carefully investigated to take into account the consequences of possible failure of components.

1.4.2 Except where otherwise stated, the tests specified in this standard are TYPE TESTS.

1.4.3 Unless otherwise specified in this standard, the tests shall be made on a single sample which shall pass all the relevant tests.

The sample shall be representative of the equipment the user would receive, or shall be the actual equipment ready for shipment to the user.

As an alternative to carrying out tests on the complete equipment, tests may be carried out separately on simulated circuits, components or sub-assemblies outside the equipment, provided that inspection of the equipment and circuit arrangements ensures that such testing will indicate that the assembled equipment conforms to the requirements of the standard.

If a test specified in this standard could be destructive, it is permitted to use a model to represent the condition to be evaluated.

NOTES

1 The tests should be carried out in the following order:

- component or material pre-selection;
- component or sub-assembly bench tests;
- tests where the equipment is not energized;
- live tests:
 - under normal operating conditions;
 - under abnormal operating conditions;
 - involving likely destruction.

2 In view of the amount of resource involved in testing and in order to minimize waste, it is recommended that all parties concerned jointly consider the test programme, the test samples and the test sequence.

1.4.4 Except where specific test conditions are stated elsewhere in the standard and where it is clear that there is a significant impact on the results of the test, the tests shall be carried out under the most unfavourable combination within the manufacturer's operating specifications of the following parameters:

- supply voltage, [SIST EN 60950:1996/A1:1996](https://standards.iteh.ai/catalog/standards/sist/d893463d-d9bd-4178-a409-d9801be47e64/sist-en-60950-1996-a1-1996)
- supply frequency, <https://standards.iteh.ai/catalog/standards/sist/d893463d-d9bd-4178-a409-d9801be47e64/sist-en-60950-1996-a1-1996>
- physical location of equipment and position of movable parts,
- operating mode,
- adjustment of THERMOSTATS, regulating devices or similar controls in OPERATOR ACCESS AREAS, which are:
 - adjustable without the use of a TOOL, or
 - adjustable using a means, such as a key or a TOOL, deliberately provided for the OPERATOR.

1.4.5 In determining the most unfavourable supply voltage for a test, the following variables shall be taken into account:

- multiple RATED VOLTAGES,
- extremes of RATED VOLTAGE RANGES,
- tolerance on RATED VOLTAGE as declared by the manufacturer.

If no tolerance is declared by the manufacturer, it shall be taken as +6% and -10%. If the rated voltage is 230 V single phase or 400 V three phase, the tolerance shall not be less than +10% and -10% (see 1.6.5).

When testing equipment designed for d.c. only, the possible influence of polarity shall be taken into account.