

# **SLOVENSKI STANDARD**

## **SIST EN 60950:1996/A3:1999**

**01-marec-1999**

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**Safety of information technology equipment, including electrical business equipment - Amendment A3 (IEC 60950:1991/A3:1995, modified)**

Safety of information technology equipment, including electrical business equipment - Amendment A3

Sicherheit von Einrichtungen der Informationstechnik

Sécurité des matériels de traitement de l'information

**Ta slovenski standard je istoveten z: EN 60950:1992/A3:1995**

### **ICS:**

35.020

Informacijska tehnika in tehnologija na splošno

Information technology (IT) in general

**SIST EN 60950:1996/A3:1999**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 60950/A3

October 1995

UDC 681.3:651.2:620.1:614.8  
ICS 35.260.10; 35.020

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

English version

**Safety of information technology equipment,  
including electrical business equipment  
(IEC 950:1991/A3:1995, modified)**

Sécurité des matériels de traitement de  
l'information, y compris les matériels de  
bureau électriques  
(CEI 950:1991/A3:1995, modifiée)

Sicherheit von Einrichtungen der  
Informationstechnik, einschließlich  
elektrischer Büromaschinen  
(IEC 950:1991/A3:1995, modifiziert)

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This amendment A3 modifies the European Standard EN 60950:1992; it was approved by CENELEC on 1994-12-06. 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

The manuscript of amendment 3 to International Standard IEC 950:1991 was submitted to the IEC-CENELEC parallel voting procedure in May 1994 for acceptance as a European Standard.

The reference document [74(Central Office)246] with common modifications prepared by CLC/TC 74 was approved by CENELEC as amendment A3 to EN 60950:1992 on 1994-12-06.

In May 1994, a draft amendment to EN 60950:1992 was prepared in order to modify two existing common modifications and was submitted to the CENELEC formal voting procedure as prAB. This was approved by CENELEC as a further amendment to EN 60950 for inclusion in amendment A3.

The following dates were fixed:

- latest date by which the amendment has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 1996-01-01
- latest date by which the national standards conflicting  
with the amendment have to be withdrawn (dow) 1997-01-01

For products which have complied with EN 60950:1992 and its amendments A1:1993 and A2:1993 before 1997-01-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2002-01-01.

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA, which replaces annex ZA in EN 60950:1992/A2:1993, and annex ZB are normative, annex ZC is informative.

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The following amendments have been made to Annexes ZA, ZB and ZC:

Annex ZA has been revised to align with the reference document.

Annex ZB - Special national conditions (snc)

- 1.7.1 The snc for the United Kingdom has been withdrawn.
- 2.3.6 The snc for Denmark and Finland has been withdrawn.
- 2.5.2 The snc for Denmark has been amended and one for Norway has been included.
- 3.2.1 The snc for Denmark has been amended.
- The snc for Switzerland has been amended.
- An snc for the United Kingdom has been included.
- 3.3.5 The snc for the UK has been amended.
- 4.3.18 An snc for the United Kingdom has been included.
- 5.1 The snc for Norway has been withdrawn.
- 4.2.1.4 b) The sncs for Finland and Norway have been amended.
- 6.4.1 The snc for Finland has been withdrawn.

Annex ZC - A-deviations

- 1.1.3 The A-deviation for Switzerland has been withdrawn.
- 1.7.2 The A-deviation for the United Kingdom has been withdrawn.
- 1.7.18 The A-deviation for Sweden has been withdrawn.
- 2.11 The A-deviations for Finland, Denmark and Norway have been withdrawn.

## Endorsement notice

The text of amendment 3:1995 to the International Standard IEC 950:1991 was approved by CENELEC as an amendment to the European Standard with agreed common modifications as given below.

## COMMON MODIFICATIONS

Delete all the "in country" notes that appear on the following pages of the reference document (IEC 950:1991/A3:1995):

73a, 79b, 89, 95, 103, 105a, 139, 177, 185, 185a, 221, 225, 227 and 231.

Corrections of typographical errors are required as follows:

2.1.3.1 Table 0, first column, replace "Over 50" by "Over 350".

Annex C In the paragraph below Table C.1, replace "...power to the motor is..." by "...power to the transformer is...".

In the official version, for annex Q "Bibliography", the following notes have to be added for the standards indicated:

IEC 127-1	NOTE: Harmonized as EN 60127-1:1991 (not modified).
IEC 127-2	NOTE: Harmonized as EN 60127-2:1991 (not modified).
IEC 127-3	NOTE: Harmonized as EN 60127-3:1991 (not modified).
IEC 529	NOTE: Harmonized as EN 60529:1991 (not modified).
IEC 707	NOTE: Harmonized as HD 441 S1:1983 (not modified).
IEC 1032	NOTE: Harmonized as HD 601 S1:1991 (not modified).
IEC 1058-1	NOTE: Harmonized as EN 61058-1:1992 (not modified).

## Amendments to existing common modifications

Clause

2.7.1 Delete the text of the existing common modification and replace by:

2.7.1 *Basic requirements*

To protect against excessive current, short circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b), c) and d):

- a) Except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.4 shall be included as integral parts of the equipment.
- b) For components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short circuit and earth fault protection may be provided by protective devices in the building installation.

c) It is permitted for equipment with a RATED CURRENT exceeding 16 A, which is PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instruction.

d) If reliance is placed on protection in the building installation, the installation instructions shall comply with 1.7.11, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet and 1.7.11 does not apply.

3.2.4 Delete the text of the existing common modification and replace by:

3.2.4 Replace "245 IEC 53" by "H05 RR-F"  
 "227 IEC 52" by "H03 VV-F or H03 VVH2-F"  
 "227 IEC 53" by "H05 VV-F or H05 VVH2-F2"

In Table 11, replace the first four lines by the following:

Up to and including 6		0,75 <sup>1)</sup>	
Over 6 up to and including 10		1,0	(0,75) <sup>2)</sup>
Over 10 up to and including 16		1,5	(1,0) <sup>3)</sup>

In the Conditions applicable to Table 11 delete the words "in some countries" in condition 1).

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In the Note delete the second sentence.

SIST EN 60950:1996/A3:1999

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When IEC 950:1991 was harmonized as EN 60950:1992 a number of common modifications were approved. As a result of the subsequent amendments A1, A2 and A3 some of these common modifications are no longer necessary and a summary of the current situation is as follows:

Deletion of all "in country" notes is still applicable.

The common modifications to the following subclauses are unchanged:

- 2.3.3 Method 4 has been deleted and the reference to it in NOTE 1.
- 2.3.7 Void
- 2.7.2 Void
- 3.2.2 Table 10, conduit sizes in parenthesis have been deleted.
- 3.3.5 Table 13 has been modified.
- 6.2.1.2 This subclause only applies to TNV circuits normally operating in excess of the limits of SELV circuits.
- 6.2.1.3 This subclause only applies to TNV circuits normally operating in excess of the limits of SELV circuits.

The common modifications to the following subclauses are no longer necessary:

1.2.8.8, 1.7.11, 2.1.3, 6.2.1.1 and 6.3.3.

## Annex ZA (normative)

Normative references to international publications  
with their relevant European publications

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.

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>IEC Publication</u>	<u>Date</u>	<u>Title</u>	<u>EN/HD</u>	<u>Date</u>
IEC 65 (mod)	1985	Safety requirements for mains operated electronic and related apparatus for household and similar use	EN 60065 <sup>1)</sup>	1993
IEC 73	1991	Coding for indicating devices and actuators by colours and supplementary means	EN 60073	1993
IEC 83	1975	Plugs and socket-outlets for domestic and similar general use	—	—
IEC 85	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
IEC 112	1979	Methods for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980
IEC 227 (mod) series		Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V	HD 21	series
IEC 245 (mod) series		Rubber insulated cables of rated voltages up to and including 450/750V	HD 22	series
IEC 309 (mod) series		Plugs, socket-outlets and couplers for industrial purposes	EN 60309	series
IEC 320 (mod)	1981	Appliance couplers for household and similar general purposes	EN 60320-1 <sup>2)</sup>	1987
IEC 364	series	Electrical installation of buildings	HD 384	series

1) EN 60065 includes A1:1987 + A2:1989 + A3:1992 to IEC 65:1985.

2) EN 60320-1 includes A1:1994 + A2:1985 to IEC 320; A3:1987 was endorsed by EN 60320-1:1987/A3:1989

<u>IEC Publication</u>	<u>Date</u>	<u>Title</u>	<u>EN/HD</u>	<u>Date</u>
IEC 384-14	1993	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	—	—
IEC 417	1973	Graphical symbols for use on electronic equipment - Index, survey and compilation of the single sheets	HD 243 S12 <sup>3)</sup>	1995
IEC 664	1992	Insulation coordination within low-voltage systems	—	—
IEC 664A	1981	First supplement to IEC 664: Insulation coordination within low-voltage systems including clearances and creepage distances for equipment	—	—
IEC 695-2-2	1991	Fire hazard testing - Part 2: Test methods Section 2: Needle-flame test	EN 60695-2-2 + corrigendum Feb. 1994	1994
IEC 825 (mod)	1984	Radiation safety of laser products, equipment classification, requirements and user's guide	EN 60825 <sup>4)</sup>	1991
IEC 851-3 + A1	1985 1988	Methods of test for winding wires Part 3: Mechanical properties	HD 490.3 S3 <sup>5)</sup>	1993
IEC 851-5 + A1	1988 1990	Methods of test for winding wires Part 5: Electrical properties	HD 490.5 S2	1991
IEC 851-6	1985	Methods of test for winding wires Part 6: Thermal properties	HD 490.6 S1	1987
IEC 885-1	1987	Electrical test methods for electric cables Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750V	—	—
<b>ISO</b>				
<u>Publication</u>				
ISO 216	1975	Writing paper and certain classes of printed matter - Trimmed sizes - A and B series	EN 20216	1990
ISO 261	1973	ISO general purpose metric screw threads General plan	—	—

3) HD 243 S12 includes supplements A:1974 to M:1994 to IEC 417.

4) EN 60825 includes A1:1990 to IEC 825:1984; it is superseded by EN 60825-1:1994 which is based on IEC 825-1:1993.

5) HD 490.3 S3 also includes A2:1992 to IEC 851-3.



<u>ISO Publication</u>	<u>Date</u>	<u>Title</u>	<u>EN/HD</u>	<u>Date</u>
ISO 262	1973	ISO general purpose metric screw threads Selected sizes for screws, bolts and nuts	—	—
ISO 3864	1984	Safety colours and safety signs	—	—
ISO 4046	1978	Paper, board, pulp and related terms Vocabulary	—	—
ISO 7000	1989	Graphical symbols for use on equipment Index and synopsis	—	—

Other publications

CFR 47, Part 68: Code of Federal Regulations (USA) Part 68: Connection of terminal equipment to the telephone network (commonly referred to as "FCC Rules, part 68").

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SIST EN 60950:1996/A3:1999

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## Annex ZB (normative)

### Special national conditions

**Special nation condition:** National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions. If it affects harmonization, it forms part of the European Standard.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

<u>Clause</u>	<u>Special national condition</u>
1.2.4.1	In Denmark, certain types of Class I appliances (see subclause 3.2.1) may be provided with a plug not establishing earthing continuity when inserted into Danish socket-outlets.
1.7.2	In Norway, if separation between the mains and a communication system/network, other than public telecommunications networks, relies upon connection to safety earth, the equipment shall have a marking stating that it must be connected to an earthed mains socket-outlet.

NOTE: For requirements for equipment to be connected to a public telecommunication network see 6.2.1.4.

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In Sweden, if the separation between the mains and a SELV terminal relies upon connection to the safety earth, the apparatus shall have a marking stating that it must be connected to an earthed mains socket-outlet when a SELV circuit is connected to a network passing both unearthed and earthed electrical environment.

The marking text shall be in Swedish and as follows:

"Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk."

1.7.5	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment.
2.3.6	In France, Method 3 is not acceptable.
2.3.9	In Norway, marking and insulation requirements according to this annex, subclauses 1.7.2 and 6.2.1.4.b) apply.
2.5.2	In Denmark and Norway, add after the first paragraph:  "The above exception is not acceptable in PLUGGABLE EQUIPMENT TYPE A."
2.9.1	In Norway, due to the IT power systems used, the mains supply voltage is considered to be equal to the phase-to-phase voltage.

- 3.2.1 In Denmark, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to the Heavy Current Regulations Section 107-2-D1.

Class I equipment provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.

If poly-phase equipment and single-phase equipment having a rated current exceeding 10 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations Section 107-1-D1 or EN 60309-2.

In Switzerland, supply cords of equipment having a rated current not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 884-1 and one of the following dimension sheets:

SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A
SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A
SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A

EN 60309 applies for plugs for currents exceeding 10 A.

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In the United Kingdom apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1786:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.

NOTE: 'standard plug' is defined in SI 1786:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.

- 3.2.4 In the United Kingdom, a power supply cord with conductor of 1,25 mm<sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.
- 3.2.5 In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10 A up to and including 13 A is:  
- 1,25 mm<sup>2</sup> to 1,5 mm<sup>2</sup> nominal cross-sectional area.
- 4.3.18 In the United Kingdom, this test should be performed using an appropriate socket-outlet with an earthing contact.
- 5.4.9 In Norway, the electric strength test after the tests of 5.4.4, 5.4.5, 5.4.6, 5.4.7 and 5.4.8 includes testing of basic insulation in Class I equipment.
- 6.1 In Switzerland, protective means in the equipment shall not prevent transient surge protection in the telecommunication network from operating properly (d.c. spark-over voltage of the surge suppressor installed in the telecommunication network: approx. 245 V).

- 6.2.1.4 b) In Finland, method b) is permitted only for permanently connected equipment or for pluggable equipment type B.

In Norway, insulation between parts conductively connected to the supply mains and parts connected to a public telecommunication network shall comply with the requirements for double or reinforced insulation.

- 6.2.1.5 In Norway, requirements in 6.2.1.4, Note 2, apply.

- 6.3.3 In Norway, 6.3.3 is applicable for pluggable equipment type A and B and for permanently connected equipment.

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## Annex ZC (informative)

## A-Deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC member.

This European Standard falls under Directive 73/23/EEC.

NOTE (from CEN/CENELEC IR Part 2, 3.1.9): Where standards fall under EC Directives, it is the view of the Commission of the European Communities (OJ No. C 59, 9.3.1982) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p.3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted except under the safeguard procedure provided for in the relevant Directive.

A-deviations in an EFTA-country are valid instead of the relevant provisions of the European Standard in that country until they have been removed.

Clause	Deviation
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1.5.1	Sweden (Ordinance SFS 1991:1290)
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Add the following:



NOTE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.

1.7.2	Denmark (Heavy Current Regulations)
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Supply cords of Class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text:

"Vigtigt!

Lederen med grøn/gul isolation  
må kun tilsluttes en klemme mærket

 eller  "

If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:

1.7.5	Denmark (Heavy Current Regulations)
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Class II equipment shall not be fitted with socket-outlets for providing power to other equipment.

1.7.14	Germany (Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 24th June 1968 in the version of 18 February 1986, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zum Gesetz über technische Arbeitsmittel" (General administrative regulation on the law on technical labour equipment, Article 2, 2nd paragraph, item 2).
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Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language.

NOTE: Of this requirement, rules for use even only by service personnel are not exempted.

1.7.17 **Switzerland** (Ordinance on environmentally hazardous substances SR 814.013)

Annex 4.10 of SR 814.013 applies for batteries.

6.4.2.1 **Austria** (Fernmeldebauvorschrift Teil 11)

Equipment shall comply with  $U_c = 2,0$  kV in cases b) and c).

Annex H **Germany** (Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4)

- a) A licence is required by those who operate an X-ray emission source.
- b) A licence in accordance with clause 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if
  - 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1  $\mu$ Sv/h and
  - 2) it is adequately indicated on the X-ray emission source that
    - i) X-rays are generated and
    - ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.
- c) A licence in accordance with clause 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if
  - 1) the X-ray emission source has been granted a type approval and
  - 2) it is adequately indicated on the X-ray emission source that
    - i) X-rays are generated,
    - ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and
    - iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.
- d) Furthermore, a licence in accordance with clause 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if
  - 1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6,
  - 2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and
  - 3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.

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