



# SLOVENSKI STANDARD

## SIST EN 60947-1:2000

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SIST EN 60947-1:1999/A1:1999

SIST EN 60947-1:1999/A2:2000

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### Nizkonapetostne stikalne in krmilnih naprave – 1. del: Splošna pravila –

Low-voltage switchgear and controlgear -- Part 1: General rules

Niederspannungsschaltgeräte -- Teil 1: Allgemeine Festlegungen  
(standards.itech.ai)

Appareillage à basse tension -- Partie 1: Règles générales

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Ta slovenski standard je istoveten z: **EN 60947-1:1999**

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#### **ICS:**

29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear
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**SIST EN 60947-1:2000**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60947-1**

February 1999

ICS 29.120.40; 29.130.20

Supersedes EN 60947-1:1997 and its amendments

Descriptors: Low-voltage switchgear and controlgear, characteristics, specification, test

English version

**Low-voltage switchgear and controlgear  
Part 1: General rules  
(IEC 60947-1:1999)**

Appareillage à basse tension  
Partie 1: Règles générales  
(CEI 60947-1:1999)

Niederspannungsschaltgeräte  
Teil 1: Allgemeine Festlegungen  
(IEC 60947-1:1999)

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This European Standard was approved by CENELEC on 1999-01-01. CENELEC 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 CENELEC 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 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, Czech Republic, 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 text of document 17B/942+942A/FDIS, future amendment to IEC 60947-1:1996, prepared by SC 17B, Low-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A3 to EN 60947-1:1997 on 1999-01-01.

The text of this document, together with that of IEC 60947-1:1996 and its amendments 1:1997 and 2:1998, was published by IEC as the third edition of IEC 60947-1 in February 1999. According to a decision of principle taken by the Technical Board of CENELEC, the approval of EN 60947-1:1997/A3 has been converted into the approval of a new EN 60947-1.

This European Standard supersedes EN 60947-1:1997 + A1:1998 + A2:1998.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-11-01

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

Annexes designated "informative" are given for information only.

In this standard, annexes C, L, M, N and ZA are normative and annexes A, B, D, E, F, G, H and J are informative.

Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 60947-1:1999 was approved by CENELEC as a European Standard without any modification.



## Annex ZA (normative)

Normative references to international publications  
with their corresponding 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 (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050(151)	1978	International Electrotechnical Vocabulary (IEV) Chapter 151: Electrical and magnetic devices	-	-
IEC 60050(441)	1984	Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60050(604)	1987	Chapter 604: Generation, transmission and distribution of electricity - Operation	-	-
IEC 60050(826)	1982	Chapter 826: Electrical installations of buildings	HD 384.2 S1	1986
IEC 60060	series	High-voltage test techniques	HD 588.1 S1 EN 60060-2	1991 1994
IEC 60068-2-3	1969	Basic environmental testing procedures Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2 <sup>1)</sup>	1987
IEC 60071-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 60073	1991	Coding of indicating devices and actuators by colours and supplementary means	EN 60073 <sup>2)</sup>	1993
IEC 60085	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
IEC 60099-1	1991	Surge arresters Part 1: Non-linear resistor type gapped surge arresters for a.c. systems	EN 60099-1	1994

1) HD 323.2.3 S2 includes A1:1984 to IEC 60068-2-3.

2) EN 60073 is superseded by EN 60073:1996, which is based on IEC 60073:1996.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980
IEC 60216	series	Guide for the determination of thermal endurance properties of electrical insulating materials	EN 60216	series
IEC 60269-1	1986	Low-voltage fuses Part 1: General requirements	EN 60269-1 <sup>3)</sup>	1989
IEC 60269-2	1986	Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application)	EN 60269-2	1995
IEC 60364-4-443	1990	Electrical installations of buildings Part 4: Protection for safety Chapter 44: Protection against overvoltages Section 443: Protection against overvoltages of atmospheric origin or due to switching	-	-
IEC 60417-2	1998	Graphical symbols for use on equipment Part 2: Symbol originals	-	-
IEC 60439-1 + corr. December	1992 1993	Low-voltage switchgear and controlgear assemblies Part 1: Type-tested and partially type-tested assemblies	EN 60439-1 + corr. August + corr. December + A11	1994 1994 1997 1996
IEC 60445	1988	Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system	EN 60445	1990
IEC 60447	1993	Man-machine interface (MMI) - Actuating principles	EN 60447	1993
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
IEC 60536-2	1992	Classification of electrical and electronic equipment with regard to protection against electric shock Part 2: Guidelines to requirements for protection against electric shock	-	-
IEC 60617-7	1983 <sup>4)</sup>	Graphical symbols for diagrams Part 7: Switchgear, controlgear and protective devices	-	-

3) EN 60269-1 is superseded by EN 60269-1:1998, which is based on IEC 60269-1:1998.

4) IEC 60617-7:1983 is superseded by IEC 60617-7:1996, which is harmonized as EN 60617-7:1996.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	HD 625.1 S1	1996
IEC 60695-2-1/0	1994	Fire hazard testing Part 2: Test methods Section 1/sheet 0: Glow-wire test methods General	EN 60695-2-1/0	1996
IEC 60695-2-1/1 + corr. May	1994 1995	Part 2: Test methods Section 1/sheet 1: Glow-wire end-product test and guidance	EN 60695-2-1/1	1996
IEC 60695-2-1/2	1994	Part 2: Test methods Section 1/sheet 2: Glow-wire flammability test on materials	EN 60695-2-1/2	1996
IEC 60695-2-1/3	1994	Part 2: Test methods Section 1/sheet 3: Glow-wire ignitability test on materials	EN 60695-2-1/3	1996
IEC 60695-2-2	1991	Part 2: Test methods Section 2: Needle-flame test	EN 60695-2-2	1994
IEC 60707	1981	Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source	HD 441 S1	1983
IEC 60947-5-1	1997	Low-voltage switchgear and controlgear Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	1997
IEC 60981	1989	Extra-heavy duty rigid steel conduits for electrical installations	-	-
IEC 60998-1 (mod)	1990	Connecting devices for low-voltage circuits for household and similar purposes Part 1: General requirements	EN 60998-1	1993
IEC 61000-4-2	1995	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	1995
IEC 61000-4-3 (mod)	1995	Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	1996
IEC 61000-4-4	1995	Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	1995

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-5	1995	Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	1995
CISPR 11 (mod)	1990	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment	EN 55011 <sup>5)</sup>	1991
CISPR 22	1993	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	EN 55022 <sup>6)</sup>	1994

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5) EN 55011 is superseded by EN 55011:1998, which is based on CISPR 11:1997 (mod).

6) EN 55022 is superseded by EN 55022:1998, which is based on CISPR 22:1997 (mod).





Corrigendum to EN 60947-1:1999

English version

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Title page

- Replace** the reference "IEC 60947-1:1999" by
- for the English title: (IEC 60947-1:1999, modified);
  - for the French title: (CEI 60947-1:1999, modifiée);
  - for the German title: (IEC 60947-1:1999, modifiziert).

Foreword

**Add** after the second paragraph:

By decision D100/070, the CENELEC Technical Board decided to include the common modifications of the previous edition of EN 60947-1.

**Replace** the endorsement notice by: [SIST EN 60947-1:2000](https://standards.iteh.ai/catalog/standards/sist/ebae36fe-f080-47e5-bc1d-66e388774c1c/sist-en-60947-1-2000)

[https://standards.iteh.ai/catalog/standards/sist/ebae36fe-f080-47e5-bc1d-](https://standards.iteh.ai/catalog/standards/sist/ebae36fe-f080-47e5-bc1d-66e388774c1c/sist-en-60947-1-2000)

The text of the International Standard IEC 60947-1:1999 was approved by CENELEC with agreed common modifications as given below.

COMMON MODIFICATIONS

**7 Constructional and performance requirements**

7.1.2 **Delete** the last paragraph just before the note.

**8 Tests**

8.2.6 **Delete** this subclause.

8.2.6.1 **Delete** this subclause.

8.2.6.2 **Delete** this subclause.

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October 1999

NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

60947-1

Troisième édition  
Third edition  
1999-02

Appareillage à basse tension –

Partie 1:  
Règles générales

iTeh STANDARD PREVIEW

Low-voltage switchgear and controlgear –

Part 1: [SIST EN 60947-1:2000](https://standards.iteh.ai/)

<https://standards.iteh.ai/standards/sist/ebae36fe-f080-47e5-bc1d-fa6a28f177c6/sist-en-60947-1-2000>  
General rules

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE XH

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For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

## Part 1: General rules

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60947-1 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This third edition cancels and replaces the second edition published in 1996, amendment 1 (1997) and amendment 2 (1998). This third edition constitutes a technical revision.

The text of this standard is based on the second edition, amendments 1 and 2 and on the following documents:

FDIS	Report on voting
17B/942+942A/FDIS	17B/962/RVD

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

Annexes C, L, M and N form an integral part of this standard.

Annexes A, B, D, E, F, G, H and J are for information only.

# LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

## Part 1: General rules

### 1 General

The purpose of this standard is to harmonize as far as practicable all rules and requirements of a general nature applicable to low-voltage switchgear and controlgear in order to obtain uniformity of requirements and tests throughout the corresponding range of equipment and to avoid the need for testing to different standards.

All those parts of the various equipment standards which can be considered as general have therefore been gathered in this standard together with specific subjects of wide interest and application, e.g. temperature-rise, dielectric properties, etc.

For each type of low-voltage switchgear and controlgear, only two main documents are necessary to determine all requirements and tests:

- 1) this basic standard, referred to as "Part 1" in the specific standards covering the various types of low-voltage switchgear and controlgear;
- 2) the relevant equipment standard hereinafter referred to as the "relevant product standard" or "product standard".

For a general rule to apply to a specific product standard, it shall be explicitly referred to by the latter, by quoting the relevant clause or subclause number of this standard followed by "Part 1" e.g. "7.2.3 of Part 1".

A specific product standard may not require, and hence may omit, a general rule (as being not applicable); or it may add to it (if deemed inadequate in the particular case), but it may not deviate from it, unless there is a substantial technical justification.

NOTE – The product standards due to be part of the series of IEC standards covering low-voltage switchgear and controlgear are:

- 60947-2: Part 2: Circuit-breakers
- 60947-3: Part 3: Switches, disconnectors, switch-disconnectors and fuse combination units
- 60947-4: Part 4: Contactors and motor-starters
- 60947-5: Part 5: Control-circuit devices and switching elements
- 60947-6: Part 6: Multiple function equipment
- 60947-7: Part 7: Ancillary equipment

#### 1.1 Scope and object

This standard applies, when required by the relevant product standard, to switchgear and controlgear hereinafter referred to as "equipment" and intended to be connected to circuits, the rated voltage of which does not exceed 1 000 V a.c. or 1 500 V d.c.

It does not apply to low-voltage switchgear and controlgear assemblies which are dealt with in IEC 60439.

NOTE – In certain clauses or subclauses of this standard, the equipment covered by this standard is also referred to as "device", to be consistent with the text of such clauses or subclauses.