EESTI STANDARD EVS-EN 60669-1:2001

Kohtkindlate majapidamis- ja muude taoliste elektripaigaldiste lülitid. Osa 1: Üldnõuded

Switches for household and similar fixed electrical installations - Part 1: General requirements

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60669-1:2001 sisaldab Euroopa standardi EN 60669-1:1999 ingliskeelset teksti.	This Estonian standard EVS-EN 60669-1:2001 consists of the English text of the European standard EN 60669-1:1999.
Standard on kinnitatud Eesti Standardikeskuse 12.07.2001 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 12.07.2001 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 29.120.40

EUROPEAN STANDARD **EN 60669-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM October 1999

ICS 29.120.40 Supersedes EN 60669-1:1995 + A2:1996

English version

Switches for household and similar fixed-electrical installations Part 1: General requirements

(IEC 60669-1:1998, modified)

Interrupteurs pour installations électriques fixes domestiques et analogues
Partie 1: Prescriptions générales
(CEI 60669-1:1998, modifiée)

Schalter für Haushalt und ähnliche ortsfeste elektrische Installationen
Teil 1: Allgemeine Anforderungen
(IEC 60669-1:1998, modifiziert)

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

Ref. No. EN 60669-1:1999 E

Foreword

The text of the International Standard IEC 60669-1:1998, prepared by SC 23B, Plugs, socket-outlets and switches, of IEC TC 23, together with the common modifications prepared by the Technical Committee CENELEC TC 23B, Switches for household and similar fixed electrical installations, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60669-1 on 1999-01-01.

This European Standard supersedes EN 60669-1:1995 and its amendment A2:1996.

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)	2000-05-01
- latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2005-10-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A, B, ZA and ZB are normative, annex ZC is informative.
Annexes ZA, ZB and ZC have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60669-1:1998 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

1 Scope

Add after note 1:

Unless otherwise specified in subsequent parts, this standard applies to switches intended to be used at 50 Hz.

NOTE 2 - Switches according to this standard are intended for functional purposes only.

Renumber subsequent notes.

2 Normative references

Replace the text of clause 2 by :

NOTE - Normative references to international publications are listed in Annex ZA (normative).

3 Definitions

3.1.3 **Replace** by “void”.

Add the following definitions :

3.1.6
switch of normal gap construction
switch construction having a clearance between the contacts in the open position not less than 3 mm

3.1.7
switch of micro-gap construction
switch construction having a clearance between the contacts in the open position less than 1,2 mm

3.1.8
switch without gap construction
switch having a semiconductor switching device which has no contact gap

3.21
type test
(IEV 151-04-15) test of one or more switches made to a certain design to show that the design meets certain specifications

3.22
routine test
(IEV 151-04-16) test to which each individual switch is subjected during and/or after manufacture to ascertain whether it complies with certain criteria

3.23
surface-type switch
switch, which when mounted, projects wholly above the surface on which it is mounted

3.24
flush-type switch
switch mainly intended to be mounted in a flush-type box

3.25
semi flush-type switch
switch mainly intended to be mounted in a semi flush-type box

3.26
panel-type switch
switch mainly intended for mounting to a panel having an aperture through which the intended accessible surface of the switch protrudes

3.27
architrave-type switch
switch having a cover plate of such proportions that it may be accommodated within an architrave

3.28
live part
(IEV 826-03-01) conductor or conductive part intended to be energised in normal use, including a neutral conductor but, by convention not a PEN conductor

NOTE - A protective conductor (PE) is not a live part.

3.29
actuating member
(IEV 442-04-16) part which is pulled, pushed or turned or otherwise moved to cause an operation

4 General requirements

Add after the first paragraph:

Where tolerances are not specified in this standard the values are to be regarded as nominal.

5 General notes on tests

5.4 **Replace** the 11th paragraph by:

Switches marked with a dual voltage are tested at the higher voltage.

Replace the last paragraph by:

Momentary contact switches are not to be submitted to the tests of 18.2 and 19.2.

6 Ratings

6.1 **Replace** the first and second paragraphs by:

Switches shall preferably have rated voltages of 250 V and 400 V.

The values 230 V, 380 V and 440 V may be used.

For momentary contact switches the preferred rated voltages are 130 V and 250 V.

6.2 In the first paragraph **add** "45 A" after "40 A".

Replace the second paragraph by:

The rated current shall not be less than 6 A, except that rated currents of 1 A, 2 A and 4 A are allowed for momentary contact switches, electromagnetic remote control switches and time delay switches.

7 Classification

7.1.4 **Delete,** in the second dashed text, the word "splash-proof".

Delete, in the third dashed text, the word "jet-proof".

7.1.7 **Add** at the end of the subclause:

NOTE - See Annex ZB for special national conditions.

7.2 Table 1, column 1, **add** the value "45" after "40".

8 Marking

8.1 **Add:**

NOTE - See Annex ZB for special national conditions.

8.3 On the last paragraph before note 2, **replace** the words "on removal of any cover or cover-plate which may be present when the switch is mounted and wired as in normal use" by "during installation".

Add:

NOTE - See Annex ZB for special national conditions.

8.6 **Replace** the first sentence of the first paragraph by:

If switches of pattern numbers 2, 3, 03 and switches having a rated voltage exceeding 250 V and rated current exceeding 16 A are marked to indicate the switch position, they shall be so marked that the direction of the movement of the actuating member to its different positions or the actual switch position is clearly indicated.

Delete the last but one paragraph and the relevant note 2.

8.8 **Change** note 2 into a requirement and **replace** its first sentence by:

If special precautions are necessary in order to ensure that, after installation, the conditions necessary to meet the requirements of this standard are achieved, the instruction sheet shall include clear information with regard to the following:

9 Checking of dimensions

Add after the first paragraph:

The manufacturer of the switch shall specify in his catalogue the type of boxes (flush or surface, etc.) in which his switches are to be mounted.

10 Protection against electric shock

10.2 **Add:**

NOTE - See Annex ZB for special national conditions.

10.3 **Replace** "covers or cover-plates" by "covers, cover-plates and other parts of the enclosure".

Add:

NOTE - See Annex ZB for special national conditions.

10.3.1 **Replace** "covers or cover-plates" by " covers, cover-plates and other parts of the enclosure".

10.3.2 **Replace** "covers or cover-plates" by "covers, cover-plates and other parts of the enclosure".

Add:

NOTE - See Annex ZB for special national conditions.

10.5 **Add** after the third paragraph:

NOTE 1 - See Annex ZB for special national conditions.

11 Provision for earthing

11.1 **Change** notes 1 and 2 into requirements.

11.2 **Replace** the second paragraph by:

They shall have a capacity not less than that of the corresponding terminals for the supply conductors.

Add:

NOTE - See Annex ZC for A-deviations.

11.3 At the beginning of the paragraph, **replace** "Switches" by "Surface-type switches".

12 Terminals

12.2.1 In table 2, **replace** the value "40" by "45".

12.2.4 **Replace** the second paragraph by:

Terminals the body of which is made of materials as detailed in 22.5, are considered as complying with this requirement.

12.2.5 **Delete** the paragraph before table 4.

Replace the text of note 1 in table 4 by "Void".

12.2.6 In the last paragraph, **replace** "in case where they exist in the relevant IEC standard" by "if any, according to HD 21.3,"

Replace the note by:

NOTE - See Annex ZB for special national conditions.

12.3.1 **Number** the present note as note 1, and **add**:

NOTE 2 - The tests of 12.3.12 are carried out using rigid solid conductors only.

12.3.2 **Replace** table 7 by:

Table 7 - Relationship between rated currents and connectable cross-sectional areas of copper conductors for screwless terminals

Rated current A	Conductors		
	Nominal cross-sectional areas mm^2	Diameter of the largest rigid conductor mm	Diameter of the largest flexible conductors mm
Up to and including 4	0,75-1	1,19	-
Above 4 and including 6	1-1,5	1,45	1,73
Above 6 and including 16[1)]	1,5-2,5	2,13	2,21

[1)] Each supply terminal of switches other than those of patter numbers 3, 03, and 7, shall allow the connection of 2 x 2,5 mm^2 conductors. In such cases terminals for rated current 10 A with separate independent clamping means for each conductor shall be used.

12.3.11 **Replace** table 8 by:

Table 8 - Test current for the verification of the electrical and thermal stresses in normal use of screwless terminals

Rated current A	Test current A	Cross sectional area of the conductor mm^2
Up to and including 4	9	0,75
Above 4 and including 6	13,5	1
Above 6 and including 10	17,5	1,5
Above 10 and including 16	22	2,5

12.3.12 **Replace** in the paragraph after note 3 the reference “table 8” by “table 9”.

13 Constructional requirements

13.12 **Replace** in table 12, column 1, the value "40" by "40-45".

13.15.2 **Replace** the note by:

NOTE - See Annex ZB for special national conditions.

15 Resistance to ageing, to harmful ingress of water and to humidity

15.1 **Replace** in the 9th paragraph, the value "55 %" by "75 %".

15.2.1 **Add** after the last paragraph:

During the test, the drain hole, if any, of switches with IP higher than IPX4 shall not be opened.

15.2.2 **Replace** this subclause by:

Switches with a degree of protection IPX4 are tested according to EN 60529.

15.2.3 **Replace** this subclause by:

Switches with a degree of protection IPX5 are tested according to EN 60529.

Add the following subclause:

15.2.4 During the test of 15.2.2 or 15.2.3 care shall be taken not to disturb the switch, for instance with shocks or jerks, to such an extent that the results of the test are modified.

If the accessory is provided with a drain hole, inspection shall show that water having entered the specimen does not accumulate and drip off without further damage to the whole equipment.

NOTE 1 - For a degree of protection higher than IPX4, it may be necessary to open the drain hole for inspection.

NOTE 2 - If the accessory is not provided with drain holes, consideration should be given to the dispersal of any accumulation of water which may occur.

Immediately after the test of 15.2.2 or 15.2.3 the specimens shall withstand the electric strength test as specified in 16.2. This test shall begin within 5 min after completion of the test of 15.2.2 or 15.2.3.

16 Insulation resistance and electric strength

16.2 **Replace** in Table 14, item 3, third column, "(note 2)" by "(note 1)"**.**

17 Temperature rise

Add the following row to table 15 between the values given for rated currents "40" and "63":

45	51	16

19 Normal operation

19.1 In table 17, **replace** the value "40" by "45".

In the 14th paragraph after table 17, **replace** the words "length 0,3 m ± 0,015 m" by "length of at least 1 m".

19.2 **Replace** the second paragraph, page 107, by:

Switches of pattern N° 7 are tested as a double switch of pattern number N° 6. While testing one part, the other part is in the off position.

Add, in the last but one paragraph, after the words "in clause 17," the words "using conductors as specified in this subclause, and .....".

20 Mechanical strength

Delete in the first dashed text “other than ordinary”.

22 Screws, current carrying parts and connections

22.1 **Delete** the second sentence of the second paragraph.

23 Creepage distances, clearances and distances through sealing compound

23.1 In table 20, item 2, **replace** the values "4[1)]" by "4 [1) 6)]"
In table 20, item 7, **replace** the value "3" by "3 [6)]"
In table 20, item 9, **replace** the value “3” by “2,5”.

Add at the bottom of table 20:

6) Clearances and creepage distances between live parts of different polarity are reduced to 1 mm for the distance between the lead wires in the pinch of a neon indicator lamp with external resistor.

Add the following subclause:

23.3 Ordinary surface-type switches shall not have bare current-carrying strips at the back.

Compliance is checked by inspection.

24 Resistance of insulating material to abnormal heat, to fire and to tracking

24.1.1 **Replace** the existing item b) by:

b) for parts of insulating material not necessary to retain current-carrying parts and parts of the earthing circuit in position, even though they are in contact with them, and parts of insulating materials necessary to hold in position the earthing terminal in an enclosure, by the test made at a temperature of 650 °C.

Annex B Additional requirements for switches having facilities for the outlet and retention of flexible cables

3 Definition

Renumber 3.21 as 3.201.

8 Marking

8.1 **Add** the following paragraph at the end of this subclause:

In addition for switches where a cord anchorage is intended to clamp effectively flexible cables other than those nominal cross-sectional areas appropriate to the rating of the switch as given in Table 2, then the minimum and maximum sizes for which the anchorage is provided may be marked in an area adjacent to the

anchorage, e.g. "6 mm - 16 mm" or "6-16". This information shall be put on the switch and/or the packaging unit.

13 Constructional requirements

13.16 In the first paragraph, **replace**: "code designation 60227 IEC 53" by "code designation 60227 IEC 52 or 60227 IEC 53".

Replace the last but one paragraph by:

An a.c. voltage of 2 000 V is applied for 1 min between the conductors and any metal clamp of the cord anchorage.

Add at the end of the subclause:

For flexible cable outlet switches:
- *It shall be clear how the relief from strain and the prevention of twisting is intended to be effected,*
- *the cord anchorage, or at least part of it, shall be integral with or permanently fixed to one of the component parts of the switch,*
- *makeshift methods such as tying the flexible cable in a knot or tying the ends with a string, shall not be used,*
- *cord anchorages shall be suitable for the different types of flexible cables for which they are intended.*

Rewirable switches with earthing connection shall be designed with ample space for slack of the earthing conductor in such a way that, if the strain relief should fail, the connection of the earthing conductor is subjected to strain after the connections of current carrying conductors and that, in the case of excessive stresses, the earthing conductor will break after the current carrying conductors.

Add:

Annex C

Routine test

(Under consideration)

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.

Publication	Year	Title	EN/HD	Year
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 60212	1971	Standard conditions for use prior to and during the testing of solid electrical insulating materials	HD 437 S1	1984
IEC 60227-1[1)]	1993	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V Part 1: General requirements	-	-
IEC 60227-3 (mod)	1993	Part 3: Non-sheathed cables for fixed wiring	HD 21.3 S3	1995
IEC 60227-4	1992[2)]	Part 4: Sheathed cables for fixed wiring	-	-
IEC 60227-5 + A1 (mod)	1979 1987	Part 5: Flexible cables (cords)	HD 21.5 S3	1994
IEC 60245-1[3)]	1994	Rubber insulated cables of rated voltages up to and including 450/750 V Part 1: General requirements	-	-
IEC 60245-4 (mod)	1994	Part 4: Cords and flexible cables	HD 22.4 S3	1995
IEC 60364-4-46 (mod)	1981	Electrical installations of buildings Part 4: Protection for safety Chapter 46: Isolation and switching	HD 384.4.46 S1	1987
IEC 60417	1973	Graphical symbols for use on equipment Index, survey and compilation of the single sheets	HD 243 S12[4)]	1995

Publication	Year	Title	EN/HD	Year
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993

1) HD 21.1. S3:1997, which is related to, but not directly equivalent with, IEC 60227-1:1993, applies instead.
2) IEC 60227-4:1979, mod., was harmonized as HD 21.4 S2:1990.
3) HD 22.1. S3:1997, which is related to, but not directly equivalent with, IEC 60245-1:1994, applies instead.
4) HD 243 S12 is superseded by EN 60417-1 & -2:1999, which are based on IEC 60417-1 & -2:1998.

IEC 60670	1989	General requirements for enclosures for accessories for household and similar fixed electrical installations	-	-
IEC 60695-2-1	1991[5)]	Fire hazard testing Part 2: Test methods -- Section 1: Glow-wire test and guidance	-	-
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 60998-2-1 (mod)	1990	Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units	EN 60998-2-1	1993
IEC 60998-2-2	1991	Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	1993
IEC 60999-1 (mod)	1990	Connecting devices - Safety requirements for screw-type and screwless-type clamping units for electrical copper conductors Part 1: General requirements and particular requirements for conductors from 0,5 mm² up to 35 mm² (included)	EN 60999-1 + corr. March	1993 1997
ISO 1456	1988	Metallic coatings - Electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium	-	-
ISO 2039-2	1987	Plastics - Determination of hardness Part 2: Rockwell hardness	-	-
ISO 2081	1986	Metallic coatings - Electroplated coatings of zinc on iron or steel	-	-
ISO 2093	1986	Electroplated coatings of tin Specification and test methods	-	-

5) IEC 60695-2-1:1991 is superseded by IEC 60695-2-1/0 to 1/3:1994, which are harmonized as EN 60695-2-1/0 to 1/3:1996.

Annex ZB (normative)

Special national conditions

Special national condition: National characteristic or practice that cannot be changed 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.

Clause	Special national condition
7.1.7	**Belgium, Finland, Germany, Netherlands, Norway and Sweden** Design B is not used due to installation practice.
8.1	**Denmark** **Add** at the end of the first paragraph: - Symbol for earth for any space provided for an earth terminal, but not containing an earth terminal, in cases where the lower temperature limit 650°C has been utilised according to 24.1.1 **United Kingdom** **Add** after the first paragraph: The marking of the type reference is not used.
8.3	**United Kingdom** **Add** at the end: The marking of the type reference is not used.
10.2	**Denmark and Norway** **Add** after the first paragraph: Due to the lack of an earthing conductor in many existing old buildings, accessories requiring earth connection cannot normally be used.

Clause Special national condition

10.3 **Denmark**

Replace the last sentence by:

However, enclosures, including covers and cover-plates, may be made of metal:

- for ordinary switches which comply with the requirements of 10.3.1, and
- for switches with a degree of protection higher than IPX0 which fulfil the requirements of either 10.3.1 or 10.3.2.

10.3.2 **Denmark and Norway**

Add after the first paragraph:

Due to the lack of an earthing conductor in many existing old buildings, accessories requiring earth connection cannot normally be used.

10.5 **Denmark and Norway**

Add after the third paragraph:

Due to the lack of an earthing conductor in many existing old buildings, accessories requiring earth connection cannot normally be used.

12.2.5 **Denmark, Finland, Norway and Sweden**

Add at the end :

The test shall be repeated with rigid solid conductors in the case they exist in the relevant IEC standard, if the first test has been made with rigid stranded conductors. In the case rigid stranded conductors do not exist, the test may be made with rigid solid conductors only.

12.2.6 **Denmark, Finland, Norway and Sweden**

Replace the note by the following requirement:

An additional test with one rigid solid conductor and one rigid stranded conductor with the same nominal cross-sectional area connected at the same time is required for terminals allowing the connection of two conductors.

13.15.2 **Denmark, Finland, Norway, Sweden and Switzerland**

This subclause is mandatory.

Annex ZC (Informative)

A-Deviations

A-Deviation: National deviations due to regulation, the alteration of which is for the time being outside the competence of 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; 1982-03-09) 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 the products complying with such a standard should not be restricted except under the safeguard procedure provided for 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
11.2	**Belgium** (Règlement Général sur les Installations Electriques, R.G.I.E. § 73.02). **Replace** the second paragraph by: They shall have a capacity not less than that of the corresponding terminals for the supply conductors except that any additional external earthing terminal shall be of a size suitable for conductors of at least 4 mm^2.

NORME INTERNATIONALE

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Partie 1:
Prescriptions générales

Switches for household and similar fixed-electrical installations –

Part 1:
General requirements

Numéro de référence
Reference number
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Numéros des publications

Depuis le 1er janvier 1997, les publications de la CEI sont numérotées à partir de 60000.

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Les versions consolidées de certaines publications de la CEI incorporant les amendements sont disponibles. Par exemple, les numéros d'édition 1.0, 1.1 et 1.2 indiquent respectivement la publication de base, la publication de base incorporant l'amendement 1, et la publication de base incorporant les amendements 1 et 2.

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Des renseignements relatifs à la date de reconfirmation de la publication sont disponibles dans le Catalogue de la CEI.

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  Accès en ligne*
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Terminologie, symboles graphiques et littéraux

En ce qui concerne la terminologie générale, le lecteur se reportera à la CEI 60050: *Vocabulaire Electrotechnique International* (VEI).

Pour les symboles graphiques, les symboles littéraux et les signes d'usage général approuvés par la CEI, le lecteur consultera la CEI 60027: *Symboles littéraux à utiliser en électrotechnique,* la CEI 60417: S*ymboles graphiques utilisables sur le matériel. Index, relevé et compilation des feuilles individuelles,* et la CEI 60617: *Symboles graphiques pour schémas.*

Publications de la CEI établies par le même comité d'études

L'attention du lecteur est attirée sur les listes figurant à la fin de cette publication, qui énumèrent les publications de la CEI préparées par le comité d'études qui a établi la présente publication.

* Voir adresse «site web» sur la page de titre.

Numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series.

Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Validity of this publication

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology.

Information relating to the date of the reconfirmation of the publication is available in the IEC catalogue.

Information on the revision work, the issue of revised editions and amendments may be obtained from IEC National Committees and from the following IEC sources:

- **IEC Bulletin**
- **IEC Yearbook**
  On-line access*
- **Catalogue of IEC publications**
  Published yearly with regular updates (On-line access)*

Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary* (IEV).

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams.*

IEC publications prepared by the same technical committee

The attention of readers is drawn to the end pages of this publication which list the IEC publications issued by the technical committee which has prepared the present publication.

* See web site address on title page.

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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INTERRUPTEURS POUR INSTALLATIONS ÉLECTRIQUES FIXES DOMESTIQUES ET ANALOGUES –

Partie 1: Prescriptions générales

AVANT-PROPOS

1) La CEI (Commission Electrotechnique Internationale) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de la CEI). La CEI a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, la CEI, entre autres activités, publie des Normes internationales. Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec la CEI, participent également aux travaux. La CEI collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
2) Les décisions ou accords officiels de la CEI concernant les questions techniques représentent, dans la mesure du possible un accord international sur les sujets étudiés, étant donné que les Comités nationaux intéressés sont représentés dans chaque comité d'études.
3) Les documents produits se présentent sous la forme de recommandations internationales. Ils sont publiés comme normes, rapports techniques ou guides et agréés comme tels par les Comités nationaux.
4) Dans le but d'encourager l'unification internationale, les Comités nationaux de la CEI s'engagent à appliquer de façon transparente, dans toute la mesure possible, les Normes internationales de la CEI dans leurs normes nationales et régionales. Toute divergence entre la norme de la CEI et la norme nationale ou régionale correspondante doit être indiquée en termes clairs dans cette dernière.
5) La CEI n'a fixé aucune procédure concernant le marquage comme indication d'approbation et sa responsabilité n'est pas engagée quand un matériel est déclaré conforme à l'une de ses normes.
6) L'attention est attirée sur le fait que certains des éléments de la présente Norme internationale peuvent faire l'objet de droits de propriété intellectuelle ou de droits analogues. La CEI ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de propriété et de ne pas avoir signalé leur existence.

La Norme internationale CEI 60669-1 a été établie par le sous-comité 23B: Prises de courant et interrupteurs, du comité d'études 23 de la CEI: Petit appareillage.

Cette troisième édition remplace la deuxième édition parue en 1993 ainsi que l'amendement 1 (1994) et l'amendement 2 (1995), et constitue une révision technique.

Le texte de cette norme est issu de la deuxième édition, amendements 1 et 2 et des documents suivants:

FDIS	Rapport de vote
23B/535/FDIS	23B/539/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Les annexes A et B font partie intégrante de cette norme.

Dans la présente norme, les caractères d'imprimerie suivants sont employés:

– prescriptions proprement dites: caractères romains;
– *modalités d'essais: caractères italiques*;
– notes: petits caractères romains.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SWITCHES FOR HOUSEHOLD AND SIMILAR FIXED-ELECTRICAL INSTALLATIONS –

Part 1: General requirements

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 60669-1 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

This third edition replaces the second edition published in 1993 as well as amendment 1 (1994) and amendment 2 (1995) and 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
23B/535/FDIS	23B/539/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 A and B form an integral part of this standard.

In this standard the following print types are used:

– requirements proper: in roman type;
– *test specifications: in italic type*;
– explanatory matter: in smaller roman type.

INTERRUPTEURS POUR INSTALLATIONS ÉLECTRIQUES FIXES DOMESTIQUES ET ANALOGUES –

Partie 1: Prescriptions générales

1 Domaine d'application

La présente partie de la CEI 60669 s'applique aux interrupteurs pour courant alternatif seulement à commande manuelle pour usages courants, de tension assignée ne dépassant pas 440 V et de courant assigné ne dépassant pas 63 A, destinés aux installations électriques fixes domestiques et analogues, soit intérieures, soit extérieures.

Le courant assigné est limité à 16 A pour les interrupteurs pourvus de bornes sans vis.

NOTE 1 – Une extension du domaine d'application aux interrupteurs de tensions assignées supérieures à 440 V est à l'étude.

La présente norme s'applique également aux boîtes de montage des interrupteurs, à l'exception des boîtes d'encastrement pour interrupteurs encastrés.

NOTE 2 – La présente norme donne des prescriptions particulières pour les boîtes. Des prescriptions générales pour les boîtes d'encastrement pour interrupteurs ordinaires* encastrés sont données dans la CEI 60670.

La présente norme s'applique aussi aux interrupteurs tels que:

– interrupteurs comprenant des lampes indicatrices au néon;

– interrupteurs à commande électromagnétique à distance (les règles particulières sont données dans la partie 2);

– interrupteurs comprenant un dispositif à action différée (les règles particulières sont données dans la partie 2);

– combinaisons d'interrupteurs et d'autres fonctions (à l'exception des interrupteurs combinés avec des fusibles);

– interrupteurs électroniques (les règles particulières sont données dans la partie 2);

– interrupteurs ayant des dispositifs de sortie et de retenue pour câbles souples, (voir annexe B).

NOTE 3 – La longueur minimale du câble utilisé avec ces interrupteurs peut être régie par des règles d'installation nationales.

Les interrupteurs conformes à la présente norme sont utilisables à des températures ambiantes ne dépassant pas habituellement 25 °C, mais pouvant atteindre occasionnellement 35 °C.

NOTE 4 – Des prescriptions supplémentaires pour les interrupteurs encastrés non ordinaires sont à l'étude.

NOTE 5 – Les interrupteurs conformes à la présente norme sont seulement prévus pour être incorporés dans un matériel de manière telle et à un emplacement tel qu'il soit improbable que l'environnement atteigne une température dépassant 35 °C.

Pour l'emploi dans les locaux présentant des conditions particulières, par exemple à bord de navires, de véhicules et autres, dans des lieux dangereux, par exemple lorsque le risque d'explosion existe, il peut être exigé des constructions spéciales.

La présente norme ne comprend pas les prescriptions et essais pour interrupteurs protégés contre la pénétration de corps étrangers solides. Ceux-ci sont à l'étude.

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* Voir la note 1 de 7.1.4.

SWITCHES FOR HOUSEHOLD AND SIMILAR FIXED-ELECTRICAL INSTALLATIONS –

Part 1: General requirements

1 Scope

This part of IEC 60669 applies to manually operated general purpose switches, for a.c. only with a rated voltage not exceeding 440 V and a rated current not exceeding 63 A, intended for household and similar fixed-electrical installations, either indoors or outdoors.

The rated current is limited to 16 A maximum for switches provided with screwless terminals.

NOTE 1 – An extension of the scope to switches for rated voltages higher than 440 V is under consideration.

The standard also applies to boxes for switches, with the exception of mounting boxes for flush-type switches.

NOTE 2 – In this standard specific requirements are given for boxes, while general requirements for boxes for ordinary* flush-type switches are given in IEC 60670.

It also applies to switches such as:

– switches incorporating pilot lights;
– electromagnetic remote control switches (particular requirements are given in part 2);
– switches incorporating a time-delay device (particular requirements are given in part 2);
– combinations of switches and other functions (with the exception of switches combined with fuses);
– electronic switches (particular requirements are given in part 2);
– switches having facilities for the outlet and retention of flexible cables (see annex B).

NOTE 3 – The minimum length of the flexible cable used with these switches may be governed by National Wiring Rules.

Switches complying with this standard are suitable for use at ambient temperatures not normally exceeding 25 °C, but occasionally reaching 35 °C.

NOTE 4 – Additional requirements for flush-type non-ordinary switches are under consideration.

NOTE 5 – Switches complying with this standard are suitable only for incorporation in equipment in such a way and in such a place that it is unlikely that the surrounding ambient temperature exceeds 35 °C.

In locations where special conditions prevail, such as in ships, vehicles and the like and in hazardous locations, for example where explosions are liable to occur, special constructions may be required.

This standard does not include requirements and tests for switches with protection against ingress of solid foreign bodies. These are under consideration.

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* See note 1 to 7.1.4.

2 Références normatives

Les documents normatifs suivants contiennent des dispositions qui, par suite de la référence qui y est faite dans le texte, sont applicables à la présente partie de la CEI 60669. Au moment de la publication de cette partie de la CEI 60669, les éditions indiquées étaient en vigueur. Tous les documents normatifs sont sujets à révision et les parties prenantes aux accords fondés sur cette partie de la CEI 60669 sont invitées à rechercher la possibilité d'appliquer les éditions les plus récentes des documents normatifs indiqués ci-après. Les membres de la CEI et de l'ISO tiennent les registres des Normes internationales en vigueur.

CEI 60112: 1979, *Méthode pour déterminer les indices de résistance et de tenue au cheminement des matériaux isolants solides dans des conditions humides*

CEI 60212: 1971, *Conditions normales à observer avant et pendant les essais de matériaux isolants électriques solides*

CEI 60227-1: 1993, *Conducteurs et câbles isolés au polychlorure de vinyle, de tension nominale au plus égale à 450/750 V – Partie 1: Prescriptions générales*

CEI 60227-3: 1993, *Conducteurs et câbles isolés au polychlorure de vinyle, de tension nominale au plus égale à 450/750 V – Partie 3: Conducteurs pour installations fixes*

CEI 60227-4: 1992: *Conducteurs et câbles isolés au polychlorure de vinyle, de tension nominale au plus égale à 450/750 V – Partie 4: Câbles sous gaine pour installations fixes*

CEI 60227-5: 1979: *Conducteurs et câbles isolés au polychlorure de vinyle, de tension nominale au plus égale à 450/750 V – Partie 5: Câbles souples*
Amendement 1 (1987)

CEI 60245-1: 1994, *Conducteurs et câbles isolés au caoutchouc, de tension nominale au plus égale à 450/750 V – Partie 1: Prescriptions générales*

CEI 60245-4: 1994, *Conducteurs et câbles isolés au caoutchouc, de tension nominale au plus égale à 450/750 V – Partie 4: Câbles souples*

CEI 60364-4-46: 1981, *Installations électriques des bâtiments – Partie 4: Protection pour assurer la sécurité – Chapitre 46: Sectionnement et commande*

CEI 60417: 1973, *Symboles graphiques utilisables sur le matériel. Index, relevé et compilation des feuilles individuelles*

CEI 60529: 1989, *Degrés de protection procurés par les enveloppes (Code IP)*

CEI 60670: 1989, *Règles générales pour les enveloppes pour appareillage pour installations électriques fixes pour usages domestiques et analogues*

CEI 60695-2-1: 1991, *Essais relatifs aux risques du feu – Partie 2: Méthodes d'essai – Section 1: Essai au fil incandescent et guide*

CEI 60998: *Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue*

CEI 60998-1: 1990, *Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue – Partie 1: Règles générales*

CEI 60998-2-1: 1990, *Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue Partie 2-1: Règles particulières pour dispositifs de connexion en tant que parties séparées à organes de serrage à vis*

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60669. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 60669 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60112: 1979, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions*

IEC 60212: 1971, *Standard conditions for use prior to and during the testing of solid electrical insulation materials*

IEC 60227-1: 1993, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 1: General requirements*

IEC 60227-3: 1993, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 3: Non-sheathed cables for fixed wiring*

IEC 60227-4: 1992, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 4: Sheathed cables for fixed wiring*

IEC 60227-5 1979, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*
Amendment 1 (1987)

IEC 60245-1: 1994, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 1: General requirements*

IEC 60245-4: 1994, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 4: Cords and flexible cables*

IEC 60364-4-46: 1981, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 46: Isolation and switching*

IEC 60417: 1973, *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets*

IEC 60529: 1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60670: 1989, *General requirements for enclosures for accessories for household and similar fixed-electrical installations*

IEC 60695-2-1: 1991, *Fire hazard testing – Part 2: Test methods – Section 1: Glow-wire test and guidance*

IEC 60998: *Connecting devices for low voltage circuits for household and similar purposes*

IEC 60998-1: 1990, *Connecting devices for low voltage circuits for household and similar purposes – Part 1: General requirements*

IEC 60998-2-1: 1990, *Connecting devices for low voltage circuits for household and similar purposes – Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

CEI 60998-2-2: 1991, *Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue – Partie 2-2: Règles particulières pour dispositifs de connexion en tant que parties séparées avec organes de serrage sans vis*

CEI 60999-1: 1990, *Dispositifs de connexion – Prescriptions de sécurité pour organes de serrage à vis et sans vis pour conducteurs électriques en cuivre – Partie 1: Prescriptions générales et prescriptions particulières pour conducteurs de 0,5 mm² à 35 mm² (inclus*

ISO 1456: 1988, *Revêtements métalliques – Dépôts électrolytiques de nickel plus chrome et de cuivre plus nickel plus chrome*

ISO 2039-2: 1987, *Plastiques – Détermination de la dureté – Partie 2: Dureté Rockwell*

ISO 2081: 1986, *Revêtements métalliques – Dépôts électrolytiques de zinc sur fer ou acier*

ISO 2093: 1986, *Dépôts électrolytiques d'étain – Spécifications et méthodes d'essai*

3 Définitions

Pour les besoins de la présente partie de la CEI 60669, les définitions suivantes s'appliquent.

Lorsqu'ils sont employés, les termes «tension» et «courant» impliquent, sauf spécification contraire, des valeurs efficaces.

3.1
interrupteur
dispositif conçu pour faire circuler ou couper le courant dans un ou plusieurs circuits électriques

3.1.1
interrupteur à bouton poussoir
interrupteur de commande ayant un organe de manoeuvre destiné à être manoeuvré par une force exercée par une partie du corps humain, généralement le doigt ou la paume de la main, et ayant emmagasiné de l'énergie pour son retour, par exemple un ressort

3.1.2
interrupteur à contact momentané
dispositif de coupure qui revient automatiquement à son état initial après manoeuvre

NOTE – Les interrupteurs à contact momentané sont destinés à commander des sonnettes, des télérupteurs électromagnétiques ou des interrupteurs temporisés.

3.1.3
bouton poussoir à contact momentané
bouton poussoir qui revient automatiquement à son état initial après manoeuvre

3.1.4
interrupteur à tirage
interrupteur dont le dispositif de manoeuvre est un cordon qui doit être tiré pour changer l'état des contacts

3.1.5
interrupteurs à faible distance d'ouverture des contacts
interrupteurs ayant une distance dans l'air entre les contacts qui est inférieure à 3 mm, mais qui est au moins de 1,2 mm

NOTE – Les interrupteurs à faible distance d'ouverture des contacts sont destinés à des utilisations fonctionnelles et ils ne sont pas destinés à être utilisés pour procurer un isolement de sécurité (voir la CEI 60364-4-46).

IEC 60998-2-2: 1991, *Connecting devices for low voltage circuits for household and similar purposes – Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units*

IEC 60999-1: 1990, *Connecting devices – Safety requirements for screw type and screwless-type clamping units for electrical copper conductors – Part 1: General requirements and particular requirements for conductors from 0,5 mm^2 up to 35 mm^2 (included)*

ISO 1456: 1988, *Metallic coatings – Electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium*

ISO 2039-2: 1987, *Plastics – Determination of hardness – Part 2: Rockwell hardness*

ISO 2081: 1986, *Metallic coatings – Electroplated coatings of zinc on iron or steel*

ISO 2093: 1986, *Electroplated coatings of tin – Specification and test methods*

3 Definitions

For the purpose of this part of IEC 60669 the following definitions apply.

Where the terms "voltage" and "current" are used, they imply r.m.s. values unless otherwise specified.

3.1
switch
device designed to make or break the current in one or more electric circuits

3.1.1
push-button switch
control switch having one actuator intended to be operated by force exerted by a part of human body, usually the finger or the palm of the hand, having stored energy return, for instance a spring

3.1.2
momentary contact switch
switching device which returns automatically to the initial state after operation

NOTE – Momentary contact switches are intended to operate bells, electromagnetic remote control switches or time-delay switches.

3.1.3
momentary push-button switch
push-button switch which returns automatically to the initial state after operation

3.1.4
cord-operated switch
switch the operating means of which is a cord which has to be pulled in order to change its contact state

3.1.5
switch of mini-gap construction
switch construction having a clearance between the contacts which is less than 3 mm but is at least 1,2 mm

NOTE – Switches of mini-gap construction are for functional purposes and they are not intended to be used for safety isolation purposes (see IEC 60364-4-46).