

INTERNATIONAL STANDARD



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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SWITCHES FOR HOUSEHOLD AND SIMILAR
FIXED ELECTRICAL INSTALLATIONS –****Part 1: General requirements**

FOREWORD

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

This fourth edition cancels and replaces the third edition published in 1998, Amendment 1:1999 and Amendment 2:2006. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) change of the scope for motor load switches;
- b) deletion of some dated normative references;
- c) changes to the definitions;
- d) in Clause 5 the number of specimens to be used for the tests are clearly given in Table 1 (Corresponding Annex A of IEC 60669-1:1998 was therefore deleted);
- e) in Clause 5 it was clarified on which switches the tests of Clause 19 shall be carried out;
- f) requirements concerning 13 A switches have been included;
- g) mandatory indication that a terminal is suitable for rigid conductor only;
- h) requirements and test conditions for flexible conductors have been included in Clause 12;
- i) requirements for pilot light units have been included;
- j) new test for self-ballasted lamp loads in 19.3;
- k) Table 20 has been completely redrawn to cover normal, mini and micro-gap switches and renumbered Table 23;
- l) new informative Annex B including changes planned for the future in order to align IEC 60669-1 with the requirements of IEC 60998 (all parts), IEC 60999 (all parts) and IEC 60228;
- m) new informative Annex C about the circuit development for 19.3;
- n) new informative Annex D including additional requirements for insulation-piercing terminals;
- o) new informative Annex E including additional requirements and tests for switches intended to be used at a temperature lower than -5 °C .

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

FDIS	Report on voting
23B/1235/FDIS	23B/1241/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

- *compliance statements: in italic type*

A list of all parts in the IEC 60669 series, published under the general title *Switches for household and similar fixed electrical installations*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
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The contents of the corrigendum of January 2020 have been included in this copy.

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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 functional switches, for alternating current (AC) only with a rated voltage not exceeding 440 V with a rated current not exceeding 63 A, intended for household and similar fixed electrical installations, either indoors or outdoors.

For switches provided with screwless terminals, the rated current is limited to 16 A.

NOTE 1 ~~An extension of the scope to switches for rated voltages higher than 440 V is under consideration.~~ The rated current is limited to 16 A for switches provided with insulation piercing terminals (IPT's) according to Annex D.

Switches covered by this document are, where applicable, intended for the control in normal use of all of the following loads:

- a circuit for a tungsten filament lamp load;
- a circuit for an externally ballasted lamp load (for example LED, CFL, fluorescent lamp load);
- a circuit for a self ballasted lamp load (for example LEDi or CFLi);
- a circuit for a substantially resistive load with a power factor not less than 0,95;
- a single phase circuit for motor load with a rated current not exceeding 3 A at 250 V (750 VA) and 4,5 A at 120 V (540 VA) and a power factor not less than 0,6. This applies to both switches rated not less than 10 A that have not undergone additional tests and to momentary switches rated not less than 6 A that have not undergone additional tests.

NOTE 2 In the following country the suitability of a switch intended to control the inrush current of a motor shall be tested: AU.

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

NOTE 3 ~~In this standard specific requirements are given for boxes, while~~ General requirements for boxes for ordinary* flush-type switches are given in IEC 60670-1.

It also applies to switches such as:

- switches incorporating pilot lights;
- electromagnetic remote control switches (particular requirements are given in ~~part 2~~ IEC 60669-2-2);
- switches incorporating a time-delay device (particular requirements are given in ~~part 2~~ IEC 60669-2-3);
- combinations of switches and other functions (with the exception of switches combined with fuses);
- electronic switches (particular requirements are given in ~~part 2~~ IEC 60669-2-1);
- switches having facilities for the outlet and retention of flexible cables (see Annex A);

* – See note 1 to 7.1.4.

- isolating switches (particular requirements are given in IEC 60669-2-4);
- switches and related accessories for use in home and building electronic systems (particular requirements are given in IEC 60669-2-5);
- firemen's switches (particular requirements are given in IEC 60669-2-6).

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

Switches complying with this document are suitable for use at ambient temperatures not normally exceeding +25 40 °C, but ~~occasionally reaching~~ their average over a period of 24 h does not exceed +35 °C, with a lower limit of the ambient air temperature of –5 °C.

~~NOTE 4 Additional requirements for flush-type non-ordinary switches are under consideration.~~ For lower temperatures see Annex E.

~~NOTE 5~~ Switches complying with this document 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 construction and/or additional requirements 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.~~

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

<https://standards.iteh.ai/>
IEC 60038:2009, *IEC standard voltages*

IEC 60068-2-75:2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60112:1979 2009, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials under moist conditions*

IEC 60212:1974 2010, *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 2011, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*
Amendment 1 (1987)

IEC 60228:2004, *Conductors of insulated cables*

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

IEC 60245-4:1994 2011, 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~~ (available from: <http://www.graphical-symbols.info/equipment>)

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

IEC 60529:1989/AMD1:1999

IEC 60529:1989/AMD2:2013

IEC 60669-2-1:2002, Switches for household and similar fixed electrical installations – Part 2-1: Particular requirements – Electronic switches

IEC 60669-2-1:2002/AMD1:2008

IEC 60669-2-1:2002/AMD2:2015

~~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 60695-2-10:2000, Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure

IEC 60695-2-11:2014, Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)

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

IEC 60998-1:1990 2002, 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

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 60998-2-3, Connecting devices for low-voltage circuits for household and similar purposes – Part 2-3: Particular requirements for connecting devices as separate entities with insulation-piercing clamping units

IEC 60998-2-4, Connecting devices for low-voltage circuits for household and similar purposes – Part 2-4: Particular requirements for twist-on connecting devices

~~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 mm² up to 35 mm² (included)~~