

INTERNATIONAL STANDARD



Switches for appliances – iTeh Standards
Part 2-4: Particular requirements for independently mounted switches

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SWITCHES FOR APPLIANCES –**Part 2-4: Particular requirements for
independently mounted switches**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 61058-2-4 has been prepared by subcommittee 23J: Switches for appliances, of IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 1995 and constitutes a technical revision.

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

- a) overall format modified to support the revised structure of the series;
- b) Annexes K and M have been included as an integral part of this document;
- c) Annex L has been included for information purposes only.

The text of this International Standard is based on the following documents:

CDV	Report on voting
23J/433/CDV	23J/441/RVC

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

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

This document is to be used in conjunction with IEC 61058-1:2016.

This document supplements or modifies the corresponding clauses in IEC 61058-1, so as to convert that publication into the IEC standard: *Particular requirements for independently mounted switches*.

When a particular subclause of IEC 61058-1 is not mentioned in this document, that subclause applies as far as reasonable. Where this document states "addition", "modification" or "replacement", the relevant text of IEC 61058-1 is to be adapted accordingly.

In this document:

- 1) the following print types are used:
 - requirements proper: in roman type;
 - *test specifications: in italic type;*
 - explanatory matter: in smaller roman type.
- 2) subclauses, figures or tables which are additional to those in IEC 61058-1 are numbered starting from 101.

A list of all the parts in the IEC 61058 series, under the general title *Switches for appliances*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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SWITCHES FOR APPLIANCES –

Part 2-4: Particular requirements for independently mounted switches

1 Scope

Clause 1 of IEC 61058-1:2016 is applicable, except as follows.

~~1.1 Replacement:~~

Addition:

This document applies to independently mounted switches for appliances (mechanical or electronic) actuated by hand, by foot or by other human activity ~~for use with~~, to operate or control electrical appliances and other equipment for household ~~and~~ or similar purposes with a rated voltage not exceeding ~~440~~ 480 V and a rated current not exceeding 63 A.

These switches are intended to be operated by a person, via an actuating member or by actuating a sensing unit. The actuating member or sensing unit can be integral with or arranged separately, either physically or electrically, from the switch and involve transmission of a signal, for example, electrical, optical, acoustic or thermal, between the actuating member or sensing unit and the switch.

Switches which incorporate additional control functions governed by the switch function are within the scope of this document.

~~1.2 Replacement:~~

IEC 61058-2-4:2018

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~~This standard applies to independently mounted switches intended to be used with an appliance or equipment.~~

This document also covers the indirect actuation of the switch when the operation of the actuating member or sensing unit is provided by a remote control or by a part of an appliance or equipment, such as a door.

NOTE 1 Electronic switches can be combined with mechanical switches giving full disconnection or micro-disconnection.

NOTE 2 Electronic switches without a mechanical switch in the supply circuit provide only electronic disconnection. Therefore, the circuit on the load side is always considered to be live.

NOTE 3 For switches used in tropical climates, additional requirements ~~may be necessary~~ can apply.

NOTE 4 Attention is drawn to the fact that the standards for appliances ~~and equipment may~~ can contain additional or alternative requirements for switches.

~~NOTE 4 Throughout this standard the word "switch" means "independently mounted switch" unless otherwise stated.~~

NOTE 5 Throughout this document, the word "appliance" means "appliance or equipment".

~~1.3 Replacement:~~

~~This standard applies to switches intended to be mounted apart from the appliance (independently mounted switches) other than those within the scope of IEC 669-1.~~

2 Normative references

Clause 2 of IEC 61058-1:2016 is applicable except as follows:

~~2.1 IEC standards~~

~~Replacement of IEC 669-1:1981 by IEC 669-1:1993.~~

Addition:

~~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 60227-5, Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)

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

IEC 60669-1:2017, Switches for household and similar fixed-electrical installations – Part 1: General requirements

IEC 61058-1:2016, Switches for appliances – Part 1: General requirements

3 Terms and definitions

Clause 3 of IEC 61058-1:2016 is applicable, except as follows.

3.3 Terms and definitions relating to the different types of switches

Additional terms and definitions:

3.3.101

independently mounted switch

switch intended to be mounted away from the controlled appliance or equipment ~~and intended to be connected to the fixed wiring on the supply side~~

3.3.102

design A switch

switch where the cover or coverplate can be removed without displacement of the conductor(s)

~~NOTE – Displacement means movement of the conductor, see IEC 60669-1, subclause 7.1.7.~~

3.3.103

design B switch

switch where the cover or coverplate cannot be removed without displacement of the conductor(s)

~~NOTE – Displacement means movement of the conductor, see IEC 60669-1, subclause 7.1.7.~~

4 General requirements

Clause 4 of IEC 61058-1:2016 is applicable.

5 General ~~notes~~ information on tests

Clause 5 of IEC 61058-1:2016 is applicable.

6 Rating

Clause 6 of IEC 61058-1:2016 is applicable.

7 Classification

Clause 7 of IEC 61058-1:2016 is applicable except as follows.

7.5 Degree of protection against solid foreign objects

Replacement:

~~7.1.5 According to the degree of protection provided by the switch, when mounted as declared:~~

~~7.1.5.1.1, 7.1.5.1.2 and 7.1.9.1 are not applicable.~~

The degree of protection against solid foreign objects is declared.

With the exception of IP0X and IP1X, all IP ratings are allowed.

7.11 According to resistance to ignitability by the glow wire temperature

Subclause 7.11.1 of IEC 61058-1:2016 is not applicable.

7.22 According to the type of forced cooling

Subclause 7.22.2 of IEC 61058-1:2016 is not applicable.

Additional subclauses:

~~7.4.101~~ According to design

~~7.4.101.1~~ design A switch;

~~7.4.101.2~~ design B switch.

NOTE 1 See definitions 3.3.102 and 3.3.103.

NOTE 2 If a switch has a base which cannot be separated from the cover or cover plate, and requires an intermediate plate which can be removed for redecorating the wall, it is considered to be of design A, provided the intermediate plate meets the requirements specified for covers and cover plates.

~~7.4.102~~ According to outlet facilities

~~7.4.102.1~~ switch with inlet/outlet facilities for rigid cables;

~~7.4.102.2~~ switch with inlet facilities for rigid cables and outlet facilities for flexible cables.

8 Marking and documentation

Clause 8 of IEC 61058-1:2016 is applicable, ~~except as follows~~ with the following modifications to Table 3:

~~Addition:~~

Table 101 – Switch information

No.		Subclause		
	Switch with unique type reference		U.t.	
	Switch with common type reference		C.T.	
401	SWITCH DESIGN			
401.1	Type of switch design	7.1.101	De	De
402	OUTLET FACILITIES			
402.1	Type of outlet facilities	7.1.102	De	De

Table 3 – Switch information and loads placed in groups

Modification:

No.	Characteristic	Subclause	Means of information	
			Common type reference CT	Unique type reference UT
2	SWITCH ENVIRONMENT/MOUNTING			
2.1	Degree of protection provided for the switch when mounted according to documentation (IP code of IEC 60529) NOTE Additional letters listed in IEC 60529 are not used.	7.5 and 7.6	Marking	Marking

4	ELECTRICAL LOAD/CONNECTION			
4.1	Rated voltage or rated voltage range	6.1	Marking	Marking

Additional rows:

101	SWITCH DESIGN			
101.1	Type of switch design	7.101.1 and 7.101.2	Document-ation	Document-ation
102	OUTLET FACILITIES			
102.1	Type of outlet facilities	7.102	Document-ation	Document-ation

9 Protection against electric shock

Clause 9 of IEC 61058-1:2016 is applicable, except as follows.

9.1 Addition of the following sentence to a):

The switch shall be fitted with the ~~cable~~ conductor of the smallest or largest nominal cross-sectional area according to Table ~~3~~ 4 whichever is more unfavourable, or with a rigid conduit, a pliable conduit or a flexible conduit.

Addition to ~~b~~ d):

This test finger, with an electrical indicator, is not applied to membranes in inlet openings and is applied to thin-walled knock-outs with a force of only 10 N.

Additional subclause:

9.101 Switches operated by means of a removable key or by means of an intermediate part, such as a cord, a chain or a rod, shall be so designed that the key or intermediate part can only touch parts which are insulated from live parts.

The key or intermediate part shall be insulated from metal parts of the mechanism, unless the clearances and creepage distances between live parts and metal parts of the mechanism have at least ~~twice~~ the values specified in 20.2.5 and 20.4.5.

Compliance is checked by inspection, by the test of 15.3 and, if necessary, by measurement.

NOTE Lacquer or enamel is not considered to be insulating material for the purpose of 9.101.

10 Provision for earthing

Clause 10 of IEC 61058-1:2016 is applicable, ~~except as follows.~~

~~Additional subclause:~~

~~10.101 Switches for class I appliances shall have provision for earthing continuity connection.~~

11 Terminals and terminations

Clause 11 of IEC 61058-1:2016 is applicable, ~~except as follows.~~

~~Table 3—Additional note:~~

~~NOTE—Switches with a rated current of 10 A and less shall have terminals accepting 1,5 mm² conductors.~~

~~11.1.1.2.2—Addition to a):~~

~~When testing with rigid conductors the tests are carried out first with rigid stranded conductors and the tests are then repeated with rigid solid conductors if a solid conductor with the same cross-sectional area is specified in IEC 60227-3.~~

~~Additional subclauses:~~

~~11.1.2.101—Terminals classified in 7.2.4 are in general not permitted. Such terminals may however in particular cases be permitted for the load side of the switch (see 11.1.3).~~

~~11.1.3.101 The power supply cable shall be connected only by a method of attachment such that the cable can be replaced without the aid of special purpose tools or by a cable not requiring special preparation. Connection from the switch to the appliance shall normally be performed in a similar way, but may in particular cases (e.g. a particular manufactured connection between the switch and the appliance) be made by a method of attachment such that the cable can only be replaced with the aid of special purpose tools normally available to the manufacturer or his agent.~~

~~A method of attachment such that the cable cannot be replaced without destroying the integrity of the switch shall not be used.~~

12 Construction

Clause 12 of IEC 61058-1:2016 is not applicable.

~~Replacement:~~

Additional subclauses:

12.101 Insulating linings, barriers and the like, shall have adequate mechanical strength and shall be secured in a reliable manner.

Compliance is checked by inspection after the tests of Clause 18.

12.102 Switches shall be so constructed as to permit:

- easy introduction and connection of the conductors in the terminals;
- adequate space between the underside of the base and the surface on which the base is mounted or between the sides of the base and the enclosure (cover or box) so that, after installation of the switch, the insulation of the conductors does not come in contact with live parts of different polarity or with moving parts of the mechanism, such as the spindle of a rotary switch;

NOTE This requirement does not imply that the metal parts of the terminals are necessarily protected by insulating barriers or insulating shoulders to avoid contact, due to incorrect installation of the terminal metal parts, with the insulation of the conductor.

- easy fixing of the base to a wall or in a box and correct positioning of the conductors.

NOTE For surface-type switches, mounted on a mounting plate, a wiring channel may be needed to comply with this requirement.

In addition, switches classified according to 7.4.101.1 (design A switch) shall permit an easy positioning and removal of the cover or cover plate, without displacing the conductors.

Compliance is checked by inspection and by an installation test with conductors of the largest cross-sectional area for the relevant terminal size, in Table 3 4.

12.103 Covers and cover plates or parts thereof, which are intended to ensure protection against electric shock, shall be held in place at two or more points by effective fixing.

Covers and cover plates or parts thereof may be fixed by means of a single fixing, for example by a screw, provided that they are retained in position by another means (e.g. by a shoulder).

NOTE 1 It is recommended that the fixings of covers and cover plates or parts thereof be captive. The use of tight fixing washers of cardboard or the like is deemed to be an adequate method for securing screws intended to be captive.