

INTERNATIONAL STANDARD

**Switches for appliances -
Part 1: General requirements**

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CONTENTS

FOREWORD	7
1 Scope	9
2 Normative references	9
3 Terms and definitions	11
3.1 General terms and definitions	11
3.2 Terms and definitions relating to voltage and current	14
3.3 Terms and definitions relating to the different types of switches	15
3.4 Terms and definitions relating to the operation of the switch	17
3.5 Terms and definitions relating to connections to the switch	18
3.6 Terms and definitions relating to terminals and terminations	18
3.7 Terms and definitions relating to insulation	20
3.8 Terms and definitions relating to pollution	21
3.9 Terms and definitions relating to manufacturers' tests	22
4 General requirements	22
5 General information on tests	22
5.1 General	22
5.2 Electrical information	23
5.3 Test loads on multiway switches	24
5.4 Test specimens	24
6 Rating	24
7 Classification	25
7.1 According to nature of supply	25
7.2 According to type of load to be controlled by each circuit of the switch	25
7.3 According to ambient temperature	25
7.4 According to number of operating cycles	26
7.5 According to the degree of protection against solid foreign objects	26
7.6 According to the degree of protection against ingress of water	26
7.7 According to degree of protection against electric shock for an incorporated switch for use in	27
7.8 According to degree of pollution inside the switch	27
7.9 According to degree of pollution outside the switch	27
7.10 According to marking	27
7.11 According to resistance to ignitability by the glow wire temperature	27
7.12 According to the rated impulse withstand voltage	28
7.13 According to the rated overvoltage category	28
7.14 According to type of disconnection	28
7.15 According to the type of coating for rigid printed board assemblies	28
7.16 According to type and/or connection of switches	28
7.17 According to configuration of switching device	29
7.18 According to duty type	29
7.19 According to linkage between contact and actuator speed	29
7.20 According to the type of terminals	29
7.21 According to the type of built in protection	30
7.22 According to the type of forced cooling	30
7.23 According to the capacitor provided with the switch	30
8 Marking and documentation	37

8.1	Switch information	37
8.1.1	General	37
8.1.2	By switch marking.....	37
8.1.3	By documentation	38
8.2	Symbols.....	41
8.3	Load rating	41
8.3.1	General	41
8.3.2	Substantially resistive load	41
8.3.3	Resistive load and motor load.....	42
8.3.4	Resistive load and capacitive load	42
8.3.5	Resistive load and tungsten filament lamp load	43
8.3.6	Declared specific load	43
8.3.7	Inductive loads	43
8.3.8	General purpose loads	44
8.4	Temperature rating	44
8.5	Operating cycles	44
8.6	Switches intended for use in Class II equipment or appliances.....	44
8.7	Required marking.....	44
8.8	Legibility and durability of marking	45
8.9	Switches with their own enclosure.....	45
9	Protection against electric shock	45
10	Provision for earthing	47
11	Terminals and terminations.....	49
11.1	Common requirements to terminals.....	49
11.1.1	General	49
11.1.2	Design of terminals.....	50
11.1.3	Insulation.....	50
11.1.4	Connection	50
11.2	Fixing of terminals	50
11.3	Location and shielding of terminals	51
11.4	Terminals for interconnection of more than one conductors.....	51
11.5	Thermal stress.....	51
11.6	Terminal tests	51
11.7	Conductor escape test (TT1).....	52
11.8	Terminal displacement test (TT2).....	53
11.8.1	Connection test (for screwless terminals)	53
11.8.2	Connection tests (for screw-type terminals)	53
11.8.3	Flat quick-connect termination.....	53
11.8.4	Push in terminals.....	54
11.9	Strand escape test (TT3)	54
11.10	Multiple conductors (TT4)	55
12	Construction	55
12.1	Constructional requirements relating to protection against electric shock	55
12.2	Constructional requirements relating to safety during mounting and normal operation of the switch.....	56
12.3	Constructional requirements relating to the mounting of switches and to the attachment of cords	57
13	Mechanism.....	57

14	Protection against ingress of solid foreign objects, ingress of water and humid conditions	58
14.1	Protection against ingress of solid foreign objects	58
14.2	Protection against ingress of water	58
14.3	Protection against humid conditions	59
15	Insulation resistance and dielectric strength	60
15.1	General requirements	60
15.2	Measurement of insulation resistance	60
15.3	Insulation test voltage	61
16	Heating	62
16.1	General requirements	62
16.2	Contacts and terminals	62
16.3	Other parts	63
16.4	Heating test	63
16.4.1	Test specimen	63
16.4.2	Conductor Connections	63
16.4.3	Test preparation setup	63
16.4.4	Test procedure	63
16.4.5	Evaluation of compliance	64
17	Endurance	64
18	Mechanical strength	65
18.1	General requirements	65
18.2	Impact	65
18.3	Pull	65
18.4	Push	66
19	Screws, current-carrying parts and connections	66
19.1	General requirements for electrical connections	66
19.2	Screwed connections	66
19.3	Current-carrying parts	69
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies	69
20.1	General requirements	69
20.2	Clearances	70
20.2.1	General	70
20.2.2	Clearances for basic insulation	70
20.2.3	Clearances for functional insulation	70
20.2.4	Clearances for supplementary insulation	70
20.2.5	Clearances for reinforced insulation	71
20.3	Clearances for disconnection	71
20.3.1	Electronic disconnection	71
20.3.2	Micro-disconnection	71
20.3.3	Full disconnection	72
20.4	Creepage distances	72
20.4.1	General	72
20.4.2	Creepage distances for basic insulation	72
20.4.3	Creepage distances for functional insulation	73
20.4.4	Creepage distances for supplementary insulation	74
20.4.5	Creepage distances for reinforced insulation	74

20.4.6	Creepage distances for disconnection	74
20.5	Solid insulation	75
20.6	Coatings of rigid printed board assemblies.....	75
20.6.1	General	75
20.6.2	Type 1 coating.....	75
20.6.3	Type 2 coating.....	76
21	Resistance to heat and abnormal heat.....	76
21.1	General.....	76
21.2	Resistance to heat.....	76
21.3	Resistance to abnormal heat.....	77
22	Resistance to rusting	78
23	Abnormal operation and fault conditions for switches.....	78
24	Components for switches.....	78
24.1	General requirements	78
24.2	Protective devices.....	79
24.2.1	General	79
24.2.2	Fuses	79
24.2.3	Cut-outs	79
24.2.4	Protective devices which only decrease the current (for example PTC resistors)	81
24.2.5	Fusing resistors	81
24.3	Capacitors	81
24.4	Resistors	82
25	EMC requirements.....	82
25.1	General.....	82
25.2	Immunity.....	82
25.2.1	General	82
25.2.2	Voltage dips and short interruptions.....	83
25.2.3	Surge immunity test.....	83
25.2.4	Electrical fast transient test	83
25.2.5	Electrostatic discharge test.....	84
25.2.6	Radiated electromagnetic field test.....	84
25.2.7	Power-frequency magnetic field test	85
25.3	Emission.....	85
25.3.1	Low-frequency emission	85
25.3.2	Radio-frequency emission	85
Annex A (normative)	Measurement of clearances and creepage distances	100
Annex B (informative)	Diagram for the dimensioning of clearances and creepage distances	105
Annex C (normative)	Proof tracking test.....	106
Annex D (informative)	Switch application guide.....	107
D.1	General.....	107
D.2	Resistive load current ratings.....	107
D.3	Resistive and/or motor load current ratings	107
D.4	Combination capacitive and resistive load ratings	108
D.5	Declared specific load ratings	108
D.6	Current ratings not exceeding 20 mA	108
D.7	General purpose load	108

Annex E (normative) Relation between rated impulse withstand voltage, rated voltage and overvoltage category	109
Annex F (normative) Pollution degree	110
Annex G (normative) Impulse voltage test.....	111
Annex H (normative) Altitude correction factors	112
Annex I (normative) Types of coatings for rigid printed board assemblies	113
Annex J (normative) Measuring the insulation distance of a coated printed board with type 1 coating	114
Annex K (normative) Routine tests.....	115
Annex L (informative) Sampling tests	116
L.1 General.....	116
L.2 General considerations	116
L.3 Tests	116
Annex M (normative) Switch families	118
M.1 Overview	118
M.2 General.....	118
M.3 Guidelines for selection of switches in switch families for testing	119
Annex N (informative) Dimensions of tabs forming part of a switch	120
Annex O (informative) Common end product standards.....	121
Annex P (informative) Background of DC arc extinction test (17.5.7 TC11)	122
P.1 General.....	122
P.2 Test current sequence	122
P.3 Arc extinction time	122
Bibliography.....	123
Figure 1 – Examples of pillar terminals	87
Figure 2 – Examples of screw terminals and stud terminals	88
Figure 3 – Examples of saddle terminals.....	89
Figure 4 – Examples of lug terminals	89
Figure 5 – Examples of mantle terminals	90
Figure 6 – Examples of screwless terminals.....	91
Figure 7 – Example of female (test) connector of flat quick-connect terminations.....	92
Figure 8 – Circuit for capacitive load test and simulated tungsten filament lamp load test for AC circuits	93
Figure 9 – Circuit for capacitive load test and simulated lamp load test for DC circuits.....	94
Figure 10 – Values of the capacitive load test circuit for test of switches rated 10/100 A 250 V AC	95
Figure 11 – Mounting device for the impact tests	96
Figure 12 – Continuous duty – Duty type S1 (see 7.18.1).....	97
Figure 13 – Short-time duty – Duty type S2 (see 7.18.2).....	97
Figure 14 – Intermittent periodic duty – Duty-type S3 (see 7.18.3).....	98
Figure 15 – Diagram for heating test.....	98
Figure 16 – Diagram for endurance test	99
Figure A.1 – Example 1	101
Figure A.2 – Example 2	101

Figure A.3 – Example 3	101
Figure A.4 – Example 4	101
Figure A.5 – Example 5	102
Figure A.6 – Example 6	102
Figure A.7 – Example 7	102
Figure A.8 – Example 8	103
Figure A.9 – Example 9	103
Figure A.10 – Example 10	104
Figure A.11 – Example 11	104
Figure B.1 – Diagram for the dimensioning of clearances and creepage distances	105
Figure J.1 – Measurement of the insulation distance	114
Figure P.1 – Circuit conditions for DC arc extinction testing	122
Table 1 – Test loads for multiway switches	24
Table 2 – Type and connection of switches	31
Table 3 – Switch information and loads placed in groups	38
Table 4 – Resistive current carried by the terminal and related cross-sectional areas of terminals for unprepared conductors	49
Table 5 – Terminal type test for prepared and unprepared conductors	51
Table 6 – Insertion and withdrawal force	53
Table 7 – Pulling forces for screw-type and push-in terminals	54
Table 8 – Minimum insulation resistance	61
Table 9 – Dielectric strength	62
Table 10 – Minimum values of pull force	65
Table 11 – Torque values	68
Table 12 – Torque values for screwed glands	68
Table 13 – Minimum clearances for basic insulation	71
Table 14 – Minimum creepage distances for basic insulation	73
Table 15 – Minimum creepage distances for functional insulation	73
Table 16 – Test levels and conditions	75
Table 17 – Test temperature for ball pressure test	77
Table 18 – Test Temperature for glow wire test	78
Table 19 – Minimum requirements for capacitors	82
Table 20 – Test levels and duration for voltage dips and short interruptions	83
Table 21 – Fast transient bursts	84
Table A.1 – Minimum values for distances with specific pollution degrees	100
Table E.1 – Rated impulse withstand voltage for switches energized directly from the low voltage mains	109
Table G.1 – Test voltages for verifying clearances at sea-level	111
Table H.1 – Altitude correction factors	112

INTERNATIONAL ELECTROTECHNICAL COMMISSION

Switches for appliances - Part 1: General requirements

FOREWORD

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IEC 61058-1 has been prepared by subcommittee 23J: Switches for appliances, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2016. This edition constitutes a technical revision.

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

- a) Extension to 600 V in the scope;
- b) Add requirements on ground-fuse (Clause 17);
- c) DC arc extinction test (Annex P and Clause 17);
- d) Table 5 re-arranged to line-up with classifications;
- e) Table 6 correction due to inhomogeneous values;
- f) Deletion of X3 capacitors in classification and in Table 19.

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

Draft	Report on voting
23J/494/FDIS	23J/499/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

In this document, the following print types are used:

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

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

- reconfirmed,
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- revised.

1 Scope

This part of IEC 61058 applies to switches or switching devices for appliances. The switches are intended to control electrical appliances and other equipment for household or similar purposes with a rated voltage not exceeding 600 V and a rated current not exceeding 63 A.

In the IEC 61058 series the terms "switching devices" and "switches" are used interchangeably.

Switches for appliances are intended to be operated by

- a person via an actuating member,
- indirect actuation,
- an actuating sensing unit.

Transmission of a signal between the actuating member or sensing unit and the switch can be connected by optical, acoustic, thermal, electrical or other relevant connection and can include remote controlled units.

This document applies to switches for appliances with additional control functions provided by the switch using electronic circuits.

This document applies to circuitry when evaluated with a switch and necessary for the switching function.

This part document applies in general to switches for appliances in conjunction with the following parts:

- Part 1-1: Requirements for mechanical switches, and/or
- Part 1-2: Requirements for electronic switches.

This document does not apply to switches covered by:

- IEC 60669 (all parts), *Switches for household and similar fixed-electrical installations*, and
- IEC 60730 (all parts), *Automatic electrical controls*.

NOTE 1 Attention is drawn to the fact that the end product standards for appliances can contain additional or alternative requirements for switches (see Annex O).

NOTE 2 Throughout this document, the word "appliance" means "appliance or equipment".

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.

IEC 60127 (all parts), *Miniature fuses*

IEC 60269-3, *Low-voltage fuses - Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar applications) - Examples of standardized systems of fuses A to F*

IEC 60384-14, *Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60417, *Graphical symbols for use on equipment* (available at: <http://www.graphical-symbols.info/equipment>)

IEC 60529:1989, *Degree of protection provided by enclosures (IP code)*
 IEC 60529:1989/AMD1:1999
 IEC 60529:1989/AMD2:2013

IEC 60617, *Graphical symbols for diagrams*

IEC 60664-3:2016, *Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60691, *Thermal-links - Requirements and application guide*

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

IEC 60695-10-2, *Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test method*

IEC 60695-11-10, *Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods*

IEC 60695-11-20, *Fire hazard testing - Part 11-20: Test flames - 500 W flame test method*

IEC 60730 (all parts), *Automatic electrical controls*

IEC 60730-1:2022, *Automatic electrical controls - Part 1: General requirements*

IEC 60730-2-9:2015, *Automatic electrical controls - Part 2-9: Particular requirements for temperature sensing controls*
 IEC 60730-2-9:2015/AMD1:2018
 IEC 60730-2-9:2015/AMD2:2020

IEC 60738-1, *Thermistors - Directly heated positive temperature coefficient - Part 1: Generic specification*

IEC 61000-3-2, *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

IEC 61000-3-3, *Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection*

IEC TS 61000-3-5, *Electromagnetic compatibility (EMC) - Part 3-5: Limits - Limitation of voltage fluctuations and flicker in low-voltage power supply systems for equipment with rated current greater than 75 A*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61032:1997, *Protection of persons and equipment by enclosures - Probes for verification*

IEC 61058-1-1:2016, *Switches for appliances - Part 1-1: Requirements for mechanical switches*

IEC 61058-1-2:2016, *Switches for appliances - Part 1-2: Requirements for electronic switches*

IEC 61210, *Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements*

IEC 62368-1:2023, *Audio/video, information and communication technology equipment - Part 1: Safety requirements*

CISPR 14-1, *Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission*

CISPR 15:2018, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*
CISPR 15:2018/AMD1:2024

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 General terms and definitions

3.1.1

mechanical switching device

switching device designed to close and open one or more electric circuits by means of separable contacts

Note 1 to entry: Any mechanical switching device may be designated according to the medium in which its contacts open and close, e.g. air, SF₆ ("sulphur hexafluoride"), oil.

[SOURCE: IEC 60050-441:1984, 441-14-02]

3.1.2

conductive part

part which is capable of conducting current although it may not necessarily be used for carrying service current

[SOURCE: IEC 60050-441:1984, 441-11-09]

3.1.3**live part**

conductive part intended to be energized under normal operating conditions, including the neutral conductor and mid-point conductor, but excluding the PEN conductor, PEM conductor and PEL conductor

[SOURCE: IEC 60050-195:2021, 195-02-19, modified – The domain <in electrical installations and equipment> has been removed.]

3.1.4**pole of a switching device**

portion of a switching device associated exclusively with one electrically separated conducting path of its main circuit and excluding those portions which provide a means for mounting and operating all poles together

Note 1 to entry: A switching device is called "single pole" if it has only one pole. If it has more than one pole, it may be called "multipole" (two-pole, three-pole, etc.) provided that the poles are coupled in such a manner as to operate together.

[SOURCE: IEC 60050-441:1984, 441-15-01]

3.1.5**detachable part**

part which is removable without the use of a tool when the switch is mounted as in normal use

3.1.6**tool**

screwdriver, or any other object which may be used to operate a nut, a screw or a similar part

3.1.7**normal use**

use of the switch for the purpose for which it was made and declared

3.1.8**unique type reference****UT**

identification marking on a switch such that by quoting it in full to the switch manufacturer a unique switch model can be identified

Note 1 to entry: This note applies to the French language only.

3.1.9**common type reference****CT**

identification marking on a switch which does not require any further specific information additional to that provided by the marking requirements of this document for selection, installation and use in accordance with this document

3.1.10**cover****cover plate**

cover made of insulating material, used to cover live parts in order to avoid accidental electric contact and which is accessible when the switch is mounted as in normal use

3.1.11**signal indicator**

device associated with a switch to indicate the circuit state visually

3.1.12

unprepared conductor

conductor which has been cut and the insulation of which has been removed for insertion into a terminal

Note 1 to entry: A conductor the shape of which is arranged for introduction into a terminal or the strands of which are twisted to consolidate the end is considered as an unprepared conductor.

[SOURCE: IEC 60050-442:1998, 442-01-26]

3.1.13

prepared conductor

conductor the end of which is fitted with an attachment such as eyelet, sleeve or cable lug

[SOURCE: IEC 60050-442:1998, 442-01-27]

3.1.14

polarity reversal

change of the polarity on the terminals connected to the load by a switching action

3.1.15

semiconductor device

SD

device the essential electric characteristics of which are due to the flow of charge carriers within one or more semiconductor materials

3.1.16

semiconductor circuit

circuit containing multiple components, where at least one is a semiconductor device

3.1.17

electronic switch

switch for appliances provided with a semiconductor device or a semiconductor circuit in its intended load path

Note 1 to entry: The electronic switch can be provided with series and/or parallel mechanical contacts.

3.1.18

duty

statement of the load to which the switch is subjected, including, if applicable, making, controlling and breaking and including their durations and sequence in time

3.1.19

duty-type

continuous, short-time or periodic duty comprising one or more loads remaining constant for the duration specified, or a non-periodic duty in which generally the load varies within the permissible operating range

[SOURCE: IEC 60050-411:1996, 411-51-13, modified - "and speed" is deleted.]

3.1.20

protective impedance

component or assembly of components whose impedance and construction are intended to limit steady-state touch current and electric charge to non-hazardous levels

[SOURCE: IEC 60050-195:2021, 195-06-34, modified - "device" is deleted.]