



SLOVENSKI STANDARD
SIST EN 60898-1:2019/A1:2024

01-oktober-2024

Električni pribor - Odklopniki za nadtokovno zaščito za gospodinske in podobne inštalacije - 1. del: Odklopniki za izmenični tok - Dopolnilo A1 (IEC 60898-1:2015/AMD1:2019)

Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation (IEC 60898-1:2015/AMD1:2019)

Elektrisches Installationsmaterial - Leitungsschutzschalter für Hausinstallationen und ähnliche Zwecke - Teil 1: Leitungsschutzschalter für Wechselstrom (AC)

Petit appareillage électrique - Disjoncteurs pour la protection contre les surintensités pour installations domestiques et analogues - Partie 1: Disjoncteurs pour le fonctionnement en courant alternatif

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ICS:

29.120.50	Varovalke in druga nadtokovna zaščita	Fuses and other overcurrent protection devices
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EUROPEAN STANDARD

EN 60898-1:2019/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2024

ICS 29.120.50

English Version

Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation
(IEC 60898-1:2015/AMD1:2019)

Petit appareillage électrique - Disjoncteurs pour la protection contre les surintensités pour installations domestiques et analogues - Partie 1: Disjoncteurs pour le fonctionnement en courant alternatif
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Elektrisches Installationsmaterial - Leitungsschutzschalter für Hausinstallationen und ähnliche Zwecke - Teil 1: Leitungsschutzschalter für Wechselstrom (AC)
(IEC 60898-1:2015/AMD1:2019)

This amendment A1 modifies the European Standard EN 60898-1:2019; it was approved by CENELEC on 2024-04-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 CEN-CENELEC Management Centre or to any CENELEC member.

This amendment 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 CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 60898-1:2019/A1:2024 (E)

European foreword

This document (EN 60898-1:2019/A1:2024) consists of the text of document IEC 60898-1:2015/AMD1:2019, prepared by IEC/SC 23E, "Circuitbreakers and similar equipment for household use", of IEC/TC 23 "Electrical accessories".

The following dates are fixed:

- latest date by which this document has to be (dop) 2025-04-22 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards (dow) 2027-04-22 conflicting with this document have to be withdrawn

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZZ, which is an integral part of EN 60898-1:2019/A1:2024.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website

Endorsement notice

[SIST EN 60898-1:2019/A1:2024](https://standards.iteh.ai/catalog/standards/sist/37999f4a-3d94-4246-b40d-fa1861c6a62b/sist-en-60898-1-2019-a1-2024)

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The text of the International Standard IEC 60898-1:2015/AMD1:2019 was approved by CENELEC as a European Standard without any modification.



IEC 60898-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

**Electrical accessories – Circuit-breakers for overcurrent protection
for household and similar installations –
Part 1: Circuit-breakers for a.c. operation**

**Petit appareillage électrique – Disjoncteurs pour la protection
contre les surintensités pour installations domestiques et analogues –
Partie 1: Disjoncteurs pour le fonctionnement en courant alternatif**

INTERNATIONAL
ELECTROTECHNICAL
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FOREWORD

This amendment has been prepared by subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

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

FDIS	Report on voting
23E/1156/FDIS	23E/1157/RVD

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

The committee has decided that the contents of this amendment and the base 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,
- replaced by a revised edition, or
- amended.

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FOREWORD

[SIST EN 60898-1:2019/A1:2024](https://standards.iteh.ai/catalog/standards/sist/37999f4a-3d94-4246-b40d-fa1861cba62b/sist-en-60898-1-2019-a1-2024)

Add the following paragraph after the sentence "This publication has been drafted in accordance with the ISO/IEC Directives, Part 2":

The following differing practices of a less permanent nature exist in the countries indicated below.

- Annex J, Clause J.1: Upper limit of current for use of screwless terminals is 16 A (CZ, DK, NL and CH; upper limit of current for use of screwless terminals is 30 A (Japan).
- J.3.3: Only universal screwless-type terminals are accepted (AT, BE, CN, DK, DE, ES, FR, IT, PT, SE and CH).

1 Scope

Replace in the third paragraph "for not being maintained" with "do not require maintenance".

Add, at the end of the fourth paragraph, after "pollution degree 2", the following text "and overvoltage category III".

Add, after the second paragraph, the following note:

NOTE 1 Additional requirements are necessary for circuit-breakers used in locations having more severe overvoltage conditions.

Add, after the fourth paragraph, the following text:

For an environment with a higher pollution degree, enclosures giving the appropriate degree of protection are used.

Add, after the tenth paragraph, the following text:

This document does not apply to circuit-breakers for DC operation that are covered by IEC 60898-3.

Delete paragraph 13: "For an environment [...] should be used."

Renumber the existing note in paragraph 14 "NOTE 2".

2 Normative references

Add the following reference to Clause 2:

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

3 Terms and definitions

3.2.13

Replace "operation sequence" by "operating sequence".

Insert the following new terms and definitions:

3.2.15

type test

test of one or more devices made to a certain design to show that the design meets certain requirements

[SOURCE: IEC 60050-411:1996, 411-53-01, modified – "machines" and "specifications" have been replaced by "devices" and "requirements", respectively.]

3.2.16

routine test

test to which each individual device is subjected during or after manufacture to ascertain whether it complies with certain criteria

[SOURCE: IEC 60050-411:1996, 411-53-02, modified – "machine" has been replaced with "device".]

3.5.14.2

Replace the source text by the following:

[SOURCE: IEC 60947-2:2016, 2.17.1, modified – "in series" has been added.]

3.5.16

Replace, in the definition, "to trip" by "to operate".

5.1 List of characteristics

Replace list items:

- range of instantaneous tripping current (see 4.5 and 5.3.5);
- I^2t classification (see 4.6).

with the following:

- range of instantaneous tripping current (see 4.6 and 5.3.5);
- I^2t classification (see 4.7).

5.2.4 Rated short-circuit capacity (I_{cn})

Replace the reference to "Table 17" in the note, by "Table 18".

5.3.1 Preferred values of rated voltage

Table 1 – Preferred values of rated voltage

Delete NOTE 1 in Table 1 and renumber the other notes accordingly.

5.3.6 Standard values of rated impulse withstand voltage (U_{imp})

Replace Table 3 by the following new Table 3:

Table 3 – Rated impulse withstand voltage as a function of the nominal voltage of the installation

Rated impulse withstand voltage U_{imp} kV	Nominal voltage of the installation	
	Three-phase systems V	Single-phase system with mid-point earthed V
2,5 ^a		120/240 ^b
4 ^a	230/400	120/240, 240 ^c
NOTE 1 For test voltages to check the insulation, see Table 14.		
NOTE 2 For test voltages to check the isolation distance across open contacts, see Table 15.		
^a The values 3 kV and 5 kV, respectively, are used for verifying the isolating distances across open contacts at the altitude of 2 000 m (see Table 15).		
^b For installation practice in Japan.		
^c For installation practice in North American countries.		

6 Marking and other product information

Add the following new paragraph after NOTE 3:

For rail-mounted circuit-breakers, appropriate rail(s) shall be indicated in the manufacturer's documentation.

8 Requirements for construction and operation

8.1.3 Clearances and creepage distances (see Annex B)

Replace 8.1.3 by the following new 8.1.3:

8.1.3 Clearances, creepage distances and solid insulation

The minimum required clearances and creepage distances are given in Table 4 which is based on the circuit-breaker being designed for operating in an environment with pollution degree 2.

Parts of PCBs connected to live parts and protected against pollution by the use of a type 2 protection according to IEC 60664-3 are exempted from this verification.

The insulating materials are classified into material groups on the basis of their comparative tracking index (CTI) according to IEC 60664-1.

NOTE 1 The comparative tracking index (CTI) is declared by the manufacturer on the basis of tests carried out on the insulating material.

NOTE 2 Information on the requirements for design of solid insulation is provided in IEC 60664-1.

For clearances on printed wiring material, footnote 3 in Table F.2 of IEC 60664-1:2007 applies. For creepage distances on printed wiring material, the distances from Table F.4 of IEC 60664-1:2007 for pollution degree 1 can be applied only if protected with a coating meeting IEC 60664-3 requirements and tests.

Table 4 – Minimum clearances and creepage distances

	Minimum clearances mm			Minimum creepage distances ^{e, f} mm											
				Group IIIa ^h (175 V ≤ CTI < 400 V) ^d				Group II (400 V ≤ CTI < 600 V) ^d				Group I (600 V ≤ CTI) ^d			
	Rated voltage V			Working voltage ^e V											
	U_{imp}														
	2,5 kV	4 kV	4 kV	> 25 ≤ 50 ⁱ	120	250	400	> 25 ≤ 50 ⁱ	120	250	400	> 25 ≤ 50 ⁱ	120	250	400
Description/item	120/ 240 120	120/ 240 240	230/ 400 230 400	> 25 ≤ 50 ⁱ	120	250	400	> 25 ≤ 50 ⁱ	120	250	400	> 25 ≤ 50 ⁱ	120	250	400
1. Between live parts which are separated when the main contacts are in the open position ^{a, j}	2,0	4,0	4,0	1,2	2,0	4,0	4,0	0,9	2,0	4,0	4,0	0,6	2,0	4,0	4,0
2. Between live parts of different polarity ^a	1,5	3,0	3,0	1,2	1,5	3,0	4,0	0,9	1,5	3,0	3,0	0,6	1,5	3,0	3,0
3. Between circuits supplied from different sources, one of which being PELV or SELV ^g	3,0	6,0	8,0	3,0	6,0	8,0	3,0	6,0	8,0	3,0	6,0	8,0	3,0	6,0	8,0
	Rated voltage V														
				120/ 240	230/ 400	120/ 240	230/ 400	120/ 240	230/ 400	120/ 240	230/ 400	120/ 240	230/ 400	120/ 240	230/ 400
4. Between live parts and – accessible surfaces of operating means – screws or other means for fixing covers which have to be removed when mounting the circuit-breaker – surface on which the circuit-breaker is mounted ^b – screws or other means for fixing the circuit-breaker – metal covers or boxes ^b – other accessible metal parts ^c – metal frames supporting flush-type circuit-breakers	1,5	3,0	3,0	1,5	4,0	1,5	3,0	1,5	3,0	1,5	3,0	1,5	3,0	1,5	3,0

Care should be taken to provide adequate clearances and creepage distances between live parts of different polarity of circuit-breakers, for example of the plug-in type mounted close to one another. If the surfaces adjacent to the circuit-breaker do not meet the clearance and creepage distance requirements, appropriate information will be provided for installation purposes.

NOTE 1 The values given for 400 V are also valid for 440 V.

NOTE 2 The parts of the neutral path, if any, are considered to be live parts.

- a For auxiliary and control contacts the values are given in the relevant standard.
- b The values are doubled if clearances and creepage distances between live parts of the device and the metallic screen or the surface on which the circuit-breaker is mounted are not dependent on the design of the circuit-breaker only, so that they can be reduced when the circuit-breaker is mounted in the most unfavourable condition.
- c Including a metal foil in contact with the surfaces of insulating material which are accessible after installation for normal use. The foil is pushed into corners, grooves, etc., by means of a straight unjointed test finger according to 9.6 (see Figure 8).
- d See IEC 60112.
- e Interpolation is allowed in determining creepage distances corresponding to voltage values intermediate to those listed as working voltage. When interpolating, linear interpolation shall be used and values shall be rounded to the same number of digits as the values taken from the tables. For determination of creepage distances, see Annex B.
- f Creepage distances cannot be less than the associated clearances.
- g To cover all different voltages including ELV in an auxiliary contact.
- h For material group IIIb ($100 \text{ V} \leq \text{CTI} < 175 \text{ V}$) the values for material group IIIa multiplied by 1,6 apply.
- i For working voltages up to and including 25 V, reference may be made to IEC 60664-1.
- j The clearance and creepage distances between the metal parts within the arc chamber may be less than 1 mm, provided that the sum of distances is greater than specified in item 1 of Table 4.

8.1.3.1 Clearances

Compliance as regards item 1 in Table 4 is checked by measurement and by the tests of 9.7.5.4.

The test is carried out with samples not submitted to the humidity treatment described in 9.7.1.

Compliance as regards items 2 and 4 in Table 4 is checked by measurement and, if the clearances are reduced, by the tests of 9.7.5.2.

The clearances of items 2 and 4 (except for accessible surfaces after installation, see note) may be reduced provided that the measured clearances are not shorter than the minimum allowed in IEC 60664-1 for homogenous field conditions. In this case, compliance as regards items 2 and 4 is always checked by the test of 9.7.5.2.

NOTE An accessible surface after installation means any surface accessible by the user when the circuit-breaker is installed according to the manufacturer's instructions. The test finger can be applied to determine whether a surface is accessible or not.

Compliance as regards item 3 in Table 4 is checked by measurement.

8.1.3.2 Creepage distances

Compliance as regards items 1, 2, 3 and 4 of Table 4 is checked by measurement.

NOTE All measurements required in 8.1.3 are carried out in Test sequence A on one sample. Tests according to 9.7.2 to 9.7.5 are carried out in Test sequence B on three samples.

8.1.3.3 Solid insulation

Compliance is checked by the tests according to 9.7.2, 9.7.3, 9.7.4 and 9.7.5, as applicable.