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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60898-1:2019 sisaldab Euroopa standardi EN 60898-1:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 60898-1:2019 consists of the English text of the European standard EN 60898-1:2019.
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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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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 , modified)**

Petit appareillage électrique - Disjoncteurs pour la protection contre les surintensités pour installations domestiques et analogues - Partie 1: Disjoncteurs pour le fonctionnement en courant alternatif
(IEC 60898-1:2015 , modifiée)

Elektrisches Installationsmaterial - Leitungsschutzschalter für Hausinstallationen und ähnliche Zwecke - Teil 1: Leitungsschutzschalter für Wechselstrom (AC)
(IEC 60898-1:2015 , modifiziert)

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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

European foreword

This document (EN 60898-1:2018) consists of the text of IEC 60898-1:2015 prepared by SC 23E “Circuit-breakers and similar equipment for household use” of IEC/TC 23 “Electrical accessories”, together with the common modifications prepared by CLC/TC 23E “Circuit breakers and similar devices for household and similar applications”.

The following dates are fixed:

- latest date by which this document has to be (dop) 2019-07-18 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards (dow) 2024-05-28 conflicting with this document have to be withdrawn

This document supersedes EN 60898-1:2003, EN 60898-1:2003/A1:2004, and EN 60898-1:2003/A12:2008.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60898-1:2015 are prefixed “Z”.

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This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 60898-1:2015 was approved by CENELEC as a European Standard with agreed common modifications.

1 Scope

Add at the end of the 4th paragraph:

...and overvoltage category III.

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

Replace the 6th paragraph by:

Circuit-breakers of this standard are suitable for use in IT systems provided that the requirements of HD 60364-4-43 are complied with.

Add after this 11th paragraph:

Supplementary requirements may be necessary for circuit-breakers of the screw-in types.

Renumber NOTE 1 as NOTE 2.

After NOTE 1 renumbered as NOTE 2, **add:**

NOTE 3 Recommendations for the dimensional coordination between enclosures and circuit breakers for mounting on rails according to EN 60715 or equivalent means are given in the CENELEC report PD CLC/TR 50473.

2 Normative reference

Replace the contents of the clause by:

NOTE Normative references to international standards are given in Annex ZB.

3 Terms and definitions

Add the following new 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 60050-441:1984, 441-53-01, modified]

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 411-53-02, modified]

3.5.15

Replace by:

conventional non-tripping current

I_{nt}

specified value of current which the circuit-breaker is capable of carrying for a specified time designated as conventional time, without tripping

[SOURCE: IEC 60050-442:1998, 442-05-54]

3.5.16

Add at the end of the clause:

[SOURCE: IEC 60050-441:1984, 442-05-55, modified]

3.6.11

Add to the end of the reference of the source:

“modified”

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL ACCESSORIES –
CIRCUIT-BREAKERS FOR OVERCURRENT PROTECTION
FOR HOUSEHOLD AND SIMILAR INSTALLATIONS –****Part 1: Circuit-breakers for a.c. operation**

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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International Standard IEC 60898-1 has been prepared by sub-committee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 2002, Amendment 1:2002 and Amendment 2:2003. This edition constitutes a technical revision.

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

- a) Revision of 9.5 Terminals
- b) Revision of the test of glow wire
- c) Simplification of the figures for short circuit tests.

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

FDIS	Report on voting
23E/881/FDIS	23E/894/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:

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- Explanatory matter: in smaller roman type.

A list of all parts in the IEC 60898 series, published under the general title *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar 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,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

ELECTRICAL ACCESSORIES – CIRCUIT-BREAKERS FOR OVERCURRENT PROTECTION FOR HOUSEHOLD AND SIMILAR INSTALLATIONS –

Part 1: Circuit-breakers for a.c. operation

1 Scope

This part of IEC 60898 applies to a.c. air-break circuit-breakers for operation at 50 Hz, 60 Hz or 50/60 Hz, having a rated voltage not exceeding 440 V (between phases), a rated current not exceeding 125 A and a rated short-circuit capacity not exceeding 25 000 A.

As far as possible, it is in line with the requirements contained in IEC 60947-2.

These circuit-breakers are intended for the protection against overcurrents of wiring installations of buildings and similar applications; they are designed for use by uninstructed people and for not being maintained.

They are intended for use in an environment with pollution degree 2.

They are suitable for isolation.

Circuit-breakers of this standard, with exception of those rated 120 V or 120/240 V (see Table 1), are suitable for use in IT systems.

This standard also applies to circuit-breakers having more than one rated current, provided that the means for changing from one discrete rating to another is not accessible in normal service and that the rating cannot be changed without the use of a tool.

This standard does not apply to

- circuit-breakers intended to protect motors;
- circuit-breakers, the current setting of which is adjustable by means accessible to the user.

For circuit-breakers having a degree of protection higher than IP20 according to IEC 60529, for use in locations where arduous environmental conditions prevail (e.g. excessive humidity, heat or cold or deposition of dust) and in hazardous locations (e.g. where explosions are liable to occur), special constructions may be required.

This standard does not apply to circuit-breakers for a.c. and d.c. operation, which is covered by IEC 60898-2.

This standard does not apply to circuit-breakers which incorporate residual current tripping devices, which is covered by IEC 61009-1, IEC 61009-2-1, and IEC 61009-2-2.

A guide for co-ordination under short-circuit conditions between a circuit-breaker and another short-circuit protective device (SCPDS) is given in Annex D. For more severe overvoltage conditions, circuit-breakers complying with other standards (e.g. IEC 60947-2) should be used.

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

NOTE 1 Circuit-breakers within the scope of this standard can also be used for protection against electric shock in case of fault, depending on their tripping characteristics and on the characteristics of the installation. The criterion of application for such purposes is dealt with by installation rules.

This standard contains all requirements necessary to ensure compliance with the operational characteristics required for these devices by type tests.

It also contains the details relative to test requirements and methods of testing necessary to ensure reproducibility of test results.

This standard states

- a) the characteristics of circuit-breakers;
- b) the conditions with which circuit-breakers shall comply, with reference to:
 - 1) their operation and behaviour in normal service;
 - 2) their operation and behaviour in case of overload;
 - 3) their operation and behaviour in case of short-circuits up to their rated short-circuit capacity;
 - 4) their dielectric properties;
- c) the tests intended for confirming that these conditions have been met and the methods to be adopted for the tests;
- d) the data to be marked on the devices;
- e) the test sequences to be carried out and the number of samples (see Annex C);
- f) the co-ordination under short-circuit conditions with another short-circuit protective device (SCPD) associated in the same circuit (see Annex D);
- g) the routine tests to be carried out on each circuit-breaker to reveal unacceptable variations in material or manufacture, likely to affect safety (see Annex I).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)*. Available from: <http://www.electropedia.org/>

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60269 (all parts), *Low-voltage fuses*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60417, *Graphical symbols for use on equipment*. Available from: <http://www.graphical-symbols.info/equipment>

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

IEC 60664-1:2007, *Insulation co-ordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

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

IEC 60695-2-11:2000, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*

IEC 60947-2:2006, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*

IEC 61545:1996, *Connecting devices – Devices for the connection of aluminium conductors in clamping units of any material and copper conductors in aluminium bodied clamping units*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-441, as well as the following apply.

3.1 Devices

3.1.1

switching device

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

[SOURCE: IEC 60050-441:1984, 441-14-01]

3.1.2

mechanical switching device

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

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

3.1.3

fuse

device that, by the fusing of one or more of its specially designed and proportioned components, opens the circuit in which it is inserted and breaks the current when this exceeds a given value for a sufficient time

[SOURCE: IEC 60050-441:1984, 441-18-01, modified – "The fuse comprises all the parts that form the complete device" has been deleted.]

3.1.4

circuit-breaker

<mechanical> mechanical switching device, capable of making, carrying and breaking currents under normal circuit conditions and also making, carrying for a specified time, and automatically breaking currents under specified abnormal circuit conditions such as those of short-circuit

[SOURCE: IEC 60050-441:1984, 441-14-20]

3.1.5

plug-in circuit-breaker

circuit-breaker having one or more plug-in terminals (see 3.3.20) and designed for use with appropriate means for the plug-in connection