

STN	Ističe pre zariadenia (CBE)	STN EN IEC 60934 35 4175
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Circuit breakers for equipment (CBE)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/20

Obsahuje: EN IEC 60934:2019, IEC 60934:2019

Oznámením tejto normy sa od 20.09.2022 ruší
STN EN 60934 (35 4175) z marca 2003

130203

EUROPEAN STANDARD

EN IEC 60934

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2019

ICS 29.120.40; 29.120.50

Supersedes EN 60934:2001 and all of its amendments
and corrigenda (if any)

English Version

**Circuit breakers for equipment (CBE)
(IEC 60934:2019)**Disjoncteurs pour équipement (DPE)
(IEC 60934:2019)Geräteschutzschalter (GS)
(IEC 60934:2019)

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

EN IEC 60934:2019 (E)**European foreword**

The text of document 23E/1084/FDIS, future edition 4 of IEC 60934, prepared by SC 23E "Circuit-breakers and similar equipment for household use" of IEC/TC 23 "Electrical accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60934:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-03-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-09-20

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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 60934:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60038:2009	NOTE	Harmonized as EN 60038:2011
IEC 60112:2003	NOTE	Harmonized as EN 60112:2003 (not modified)
IEC 60112:2003/A1:2009	NOTE	Harmonized as EN 60112:2003/A1:2009 (not modified)
IEC 60269 (series)	NOTE	Harmonized as EN 60269 (series)
IEC 60664 (series)	NOTE	Harmonized as EN 60664 (series)
IEC 60947-1:2007	NOTE	Harmonized as EN 60947-1:2007 (not modified)
IEC 61543:1995	NOTE	Harmonized as EN 61543:1995 (not modified)
IEC 61543:1995/A2:2005	NOTE	Harmonized as EN 61543:1995/A2:2006 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60068-2-20	-	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	2008
IEC 60227	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V		-
IEC 60417	1973 ¹	Graphical symbols for use on equipment. - Index, survey and compilation of the single sheets.		-
IEC 60529	2013 ¹	Degrees of protection provided by enclosures (IP Code)		-
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2017
IEC 60695-2-10	-	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2013
IEC 60898-1 (mod)	2015	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation	EN 60898-1	2019

¹ Dated as no equivalent European Standard exists.

EN IEC 60934:2019 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2008 ¹	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	EN 61000-4-4	2012
IEC 61000-4-5	-	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
			+ A1	2017
IEC 61000-6-1	-	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments	EN IEC 61000-6-1	2019
CISPR 32	-	Electromagnetic compatibility of multimedia equipment - Emission requirements	EN 55032	2015

Annex ZZ (informative)

Coverage of Essential Requirements of EU Directives

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZZ.2 – Correspondence between this European standard and Article 3 of Directive 2014/35/EU [2014 OJ L153]

Safety Objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
(1)(a)	1, 2, 3, 4, 5, 6 – 9.3	
(1)(b)	8.1.1, 8.1.2, 8.1.5, 8.1.6, 8.1.7, 9.1, 9.2, 9.3, 9.4.1, 9.4.2, 9.4.3, Annex E	
(1)(c)	7 – 9.1 and 9.2, Annex J	
(2) (a)	8.2, 8.5, 8.6, 8.7, 9.6, 9.8, 9.9, 9.10, 9.11, 9.12, Annex C	
(2) (b)	8.3, 8.5, 8.6, 8.7, 9.8, 9.9, 9.10, 9.11, 9.12, Annex C	
(2) (c)	6, 8.1.2, 9.11.4.1, 9.12.4.2	
(2) (d)	8.1.3, 8.4, 9.7, Annex B	
(3) (a)	8.8, 8.12, 9.13, 9.17	
(3) (b)	8.9, 8.10, 9.14, 9.15, Annex G	
(3) (c)	8.5, 8.6, 8.7, 9.10, 9.11, 9.12	

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IEC 60934

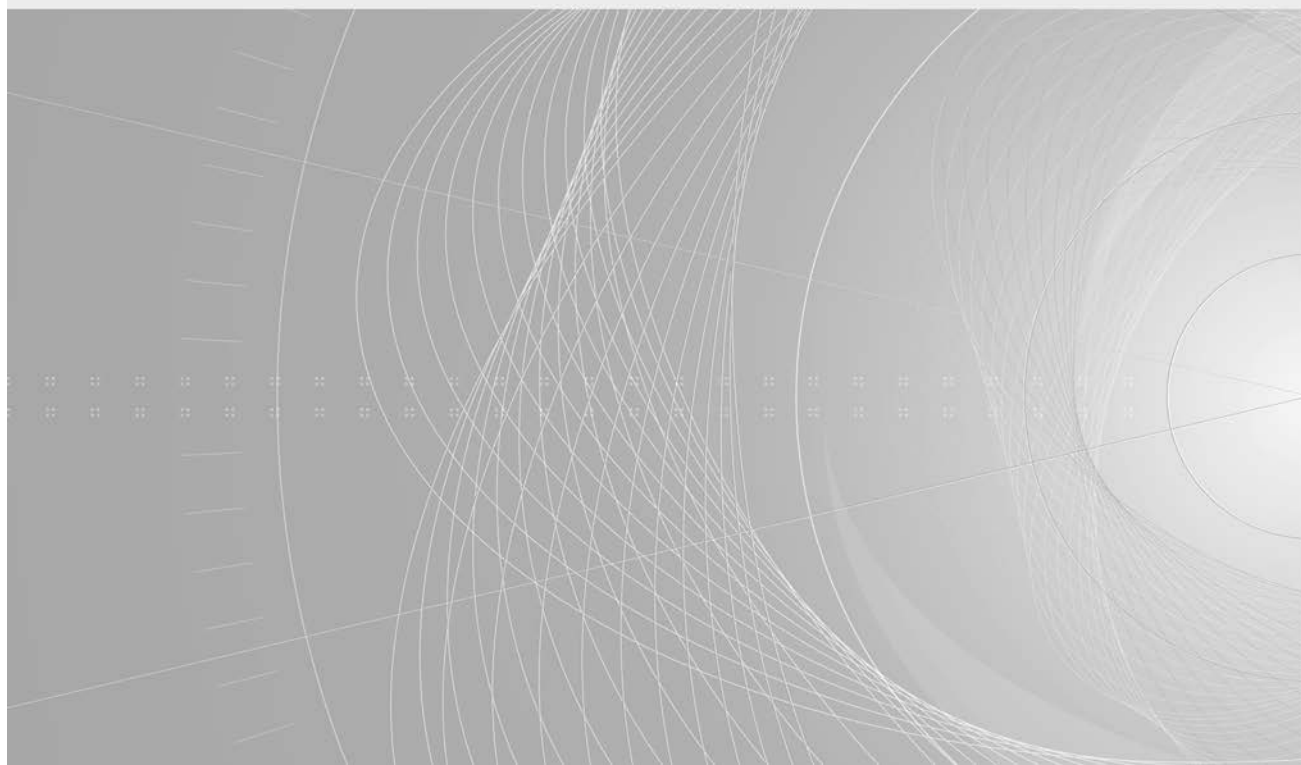
Edition 4.0 2019-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Circuit-breakers for equipment (CBE)

Disjoncteurs pour équipement (DPE)





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IEC 60934

Edition 4.0 2019-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Circuit-breakers for equipment (CBE)

Disjoncteurs pour équipement (DPE)

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.40; 29.120.50

ISBN 978-2-8322-6391-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CIRCUIT-BREAKERS FOR EQUIPMENT (CBE)

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International Standard IEC 60934 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 International Standard is based on the following documents:

FDIS	Report on voting
23E/1084/FDIS	23E/1104/RVD

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 fourth edition cancels and replaces the third edition published in 2000, Amendment 1:2007 and Amendment 2:2013. This edition constitutes a technical revision.

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

- a) clarifications for type testing purposes.

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.

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.

CIRCUIT-BREAKERS FOR EQUIPMENT (CBE)

1 Scope

This document is applicable to mechanical switching devices designed as "circuit-breakers for equipment" (CBE) for household and similar applications. CBEs according to this document are intended to provide protection to circuits within electrical equipment including its components (e.g. motors, transformers, internal wiring). This document covers also CBEs applicable for protection of electrical equipment in case of undervoltage and/or overvoltage. This document also covers CBEs which are suitable for isolation.

NOTE The term "equipment" includes appliances.

CBEs are not applicable for overcurrent protection of wiring installations of buildings.

CBEs according to this document have:

- a rated voltage not exceeding 440 V AC (between phases) and/or DC not exceeding 250 V;
- a rated current not exceeding 125 A;
- a short-circuit capacity (I_{cn}) of at least $6 \times I_n$ (AC types) and $4 \times I_n$ (DC types) but not exceeding 3 000 A.

CBEs may have a conditional short-circuit current (I_{nc}) rating in association with a specified short-circuit protective device (SCPD). A guide for coordination of a CBE associated in the same circuit with a SCPD is given in Annex F.

For CBEs having a degree of protection higher than IP20 according to IEC 60529, for use in locations where hazardous 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 document contains all the 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 document states:

- a) the characteristics of CBEs;
- b) the conditions with which CBEs 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 to be submitted for certification purposes (see Annex C);

- f) the routine tests to be carried out to reveal unacceptable variations in material or manufacture, likely to affect safety (see Annex I).

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 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

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

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

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

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

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

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

IEC 60898-1:2015, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation*

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 61000-6-1, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments*

CISPR 32, *Electromagnetic compatibility of multimedia equipment – Emission requirements*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN