

STN	Požiadavky na zariadenia na samočinné opätovné zapínanie (ARD) ističov, prúdových chráničov s nadprúdovou ochranou (RCBO) a prúdových chráničov bez nadprúdovej ochrany (RCCB) pre domácnosť a na podobné použitie	STN EN 63024 35 4191
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Requirements for automatic reclosing devices (ARDs) for circuit-breakers, RCBOs and RCCBs for household and similar uses

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. 01/19

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Oznámením tejto normy sa od 17.01.2021 ruší
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EUROPEAN STANDARD

EN 63024

NORME EUROPÉENNE

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Supersedes EN 50557:2011

English Version

**Requirements for automatic reclosing devices (ARDs) for circuit-breakers, RCBOs and RCCBs for household and similar uses
(IEC 63024:2017)**

Exigences pour les dispositifs à refermeture automatique
(DRA) pour disjoncteurs, ID et DD, pour usages
domestiques et analogues
(IEC 63024:2017)

Anforderungen an automatische
Wiedereinschalteneinrichtungen für Leitungsschutzschalter,
RCBOs, RCCBs für Hausinstallationen und ähnliche
Zwecke
(IEC 63024:2017)

This European Standard was approved by CENELEC on 2018-01-17. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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This European Standard 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 63024:2018 (E)**European foreword**

The text of document 23E/1037/FDIS, future edition 1 of IEC 63024, prepared by IEC/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 63024:2018.

A draft amendment, which covers common modifications to IEC 63024 (23E/1037/FDIS), was prepared by CLC/TC 23E "Circuit breakers and similar devices for household and similar applications" and approved by CENELEC.

The following dates are fixed:

- latest date by which this document has to (dop) 2019-01-17
be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2021-01-17
standards conflicting with this document
have to be withdrawn

This document supersedes EN 50557:2011.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 63024:2017 are prefixed "Z".

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2014/35/EU).

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 ZZA and Annex ZZB, which are integral parts of this document.

Endorsement notice

The text of the International Standard IEC 63024:2017 was approved by CENELEC as a European Standard with agreed common modifications.

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

IEC 60085	NOTE Harmonized as EN 60085.
IEC 60112:2003	NOTE Harmonized as EN 60112:2003 (not modified).
IEC 60112:2003/AMD1:2009	NOTE Harmonized as EN 60112:2003/A1:2009 (not modified).
IEC 60364-6:2006	NOTE Harmonized as HD 60364-6:2007 (modified).
IEC 60384-14:2013	NOTE Harmonized as EN 60384-14:2013 (not modified).
IEC 60695-2-10:2013	NOTE Harmonized as EN 60695-2-10:2013 (not modified).
IEC 60998-2-3	NOTE Harmonized as EN 60998-2-3.
IEC 61000-3-2	NOTE Harmonized as EN 61000-3-2.
IEC 61000-3-3	NOTE Harmonized as EN 61000-3-3.
IEC 62423	NOTE Harmonized as EN 62423

Common modifications

4 Classification

Add a new subclause after 4.7:

4.Z1 According to the range of ambient air temperature (only for ARD according to 4.2.2 and 4.2.3)

4.Z1.1 ARD for use at ambient air temperatures between -5 °C and +40 °C;

4.Z1.2 ARD for use at ambient air temperatures between -25 °C and +40 °C.

6 Marking and other product information

6.1 Standard marking

Add the following new item:

p) for ARD classified according to 4.Z1.2, ambient air temperature with the symbol (the value -25 included in the snow flake symbol according to ISO 7000:2014, Figure 0027). For devices according to 4.1.2, the information of the ambient air temperature shall not be visible after assembly.

8 Requirements for construction and operation

8.1 Mechanical design

8.1.1 General

Add at the end of the subclause the following new text:

“ARD shall be assembled only with main MPDs having a higher or equal range of ambient air temperature (see 4.Z1).”

Add a new subclause after 8.15:

8.Z1 Behaviour at low ambient air temperature

ARD classified according to 4.2.2 and 4.2.3 for use in the range of -25 °C to +40 °C shall operate reliably at low temperatures.

For the ARD+MPD, the relevant subclauses of the MPD standard applies:

- a) EN 61008-1:2004, 8.Z1, for ARD classified according to 4.2.2 (RCCBs);
- b) EN 61009-1:2004, 8.Z1, for ARD classified according to 4.2.3 (RCBOs).

Compliance is checked by the test of 9.18.

9 Tests

9.18 Verification of the operating characteristics

9.18.3 Verification of the reclosing subordinated to the measurements of the resistance between live parts

Add at the end of Subclause 9.18.3 the following new text:

RCDs classified in according with 4.Z1.2 shall also perform the test with an ambient temperature of (-25 ± 2) °C.

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9.22.5 Electromagnetic emission of ARDs

Add at the end of the clause the following text:

The text on the statistical evaluation of mass produced products in Clause 7 of CISPR 14-1 does not apply.

Table D.1 - Test sequences

Add a new row at the end of to the table as follows:

I	6.1 p) 9.18.3 (last paragraph)	Verification of the correct operation at low ambient air temperatures for RCCBs for use at temperatures between -25 °C and +40 °C
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Add the following annexes:

Annex ZA (normative) Normative references to international publications with their corresponding European publications

Annex ZZA (informative) Relationship between this European standard and the essential requirements of Directive 2014/30/EU [2014 OJ L96] aimed to be covered

Annex ZZB (informative) Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

EN 63024:2018 (E)**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 60065 (mod)	2014	Audio, video and similar electronic apparatus - Safety requirements	EN 60065	2014
IEC 60384	Series	Fixed capacitors for use in electronic equipment - Part 9: Sectional specification: Fixed capacitors of ceramic dielectric, Class 2	EN 60384	Series
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 60898-1	2015	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation	-	-
IEC 60898-2	2016	Circuit-breakers for overcurrent protection for household and similar installations - Part 2: Circuit-breakers for a.c. and d.c. operation	-	-
IEC 60947-5-1	-	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	2016
IEC 60950-1 (mod)	-	Information technology equipment - Safety - Part 1: General requirements	EN 60950-1	2006
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	-	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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
IEC 61000-4-6	-	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2014
IEC 61000-4-16	-	Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	EN 61000-4-16	2016
IEC 61008-1 (mod)	2010	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) - Part 1: General rules	EN 61008-1	2012
+A1 (mod)	2012		+A1	2014
+A2 (mod)	2013		+A2	2014
IEC 61009-1 (mod)	2010	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules	EN 61009-1	2012
+A1 (mod)	2012		+A1	2014
+A2 (mod)	2013		+A2	2014
IEC 61189-2	-	Test methods for electrical materials, printed boards and other interconnection structures and assemblies - Part 2: Test methods for materials for interconnection structures	EN 61189-2	2006
IEC 61543	1995	Residual current-operated protective devices (RCDs) for household and similar use - Electromagnetic compatibility	EN 61543	1995
+A1	2004		+ A11	2003
+A2	2005		+A2	2006
IEC 61558	Series	Safety of transformers, reactors, power supply units and combinations thereof	EN 61558	Series
IEC 62019	-	Electrical accessories - Circuit-breakers and similar equipment for household use - Auxiliary contact units	EN 62019	1999
CISPR 14-1	-	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	EN 55014-1	2017
ISO 7000	2014	Graphical symbols for use on equipment - Registered symbols	-	-

EN 63024:2018 (E)**Annex ZZA**
(informative)**Relationship between this European standard and the essential requirements of Directive 2014/30/EU [2014 OJ L96] aimed to be covered**

This European standard has been prepared under the European Commission standardisation request C(2016) 7641 final of 30.11.2016¹, ('M/552'), as regards harmonised standards in support of Directive 2014/30/EU relating to electromagnetic compatibility, to provide one voluntary means of conforming to essential requirements of Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility [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 ZZA.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 ZZA.1 – Correspondence between this European standard and the Essential Requirements set out in Directive 2014/30/EU [2014 OJ L96]

Essential requirements of Directive 2014/30/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Annex I. 1(a) (electromagnetic disturbances)	9.22.5	For CISPR 14-1, the text on the statistical evaluation of mass produced products in Clause 7 does not apply.
Annex I. 1(b) (electromagnetic immunity)	8.15-9.22	

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

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¹ COMMISSION IMPLEMENTING DECISION C(2016) 7641 final of 30.11.2016 on a standardisation request to the European Committee for Standardisation, to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards harmonised standards in support of Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

Annex ZZB (informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

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].

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Table ZZB.1 – 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 - 9.4	
(1)(b)	6.2, 8.1.1, 8.1.2.1, 8.1.2.2 and 9.5.1	
(1)(c)	7, 8.1.2.8, 8.10, 8.11, 8.15, 9.5.2, 9.5.4, 9.7.4, 9.13, 9.18.1, 9.18.2, 9.18.3, 9.19.1, 9.19.2 and 9.22	
(2) (a)	8.2, 8.5, 9.3, 8.10.8, 8.11, 8.13, 8.14, 9.1, 9.7.4, 9.13, 9.18.4, 9.19.1, 9.19.2, 9.20 and 9.21	
(2) (b)	8.1.5, 8.1.6, 8.4, 9.8, 9.9 and 9.12	
(2) (c)	8.1.2.3, 8.1.2.4, 8.1.2.5, 9.5.2 and 9.5.3	
(2) (d)	8.1.3, 8.1.4, 8.3, 9.6, 9.7 and 9.11	
(3) (a)	8.7 - 9.15	
(3) (b)	8.8, 8.9, 8.15, 9.16, 9.17 and 9.22	
(3) (c)	8.6, 8.12, 9.14 and 9.17	

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Requirements for automatic reclosing devices (ARDs) for circuit-breakers, RCBOs and RCCBs for household and similar uses

Exigences pour les dispositifs à refermeture automatique (DRA) pour disjoncteurs, ID et DD, pour usages domestiques et analogues



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IEC Central Office
 3, rue de Varembe
 CH-1211 Geneva 20
 Switzerland

Tel.: +41 22 919 02 11
 Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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INTERNATIONAL STANDARD

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**REQUIREMENTS FOR AUTOMATIC RECLOSING DEVICES (ARDs)
FOR CIRCUIT-BREAKERS, RCBOs AND RCCBs
FOR HOUSEHOLD AND SIMILAR USES**

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International Standard IEC 63024 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/1037/FDIS	23E/1038/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.

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.

INTRODUCTION

Automatic reclosing devices (ARDs) are intended to reclose circuit-breakers, RCBOs, and RCCBs after tripping in order to re-establish continuity of service.

REQUIREMENTS FOR AUTOMATIC RECLOSING DEVICES (ARDs) FOR CIRCUIT-BREAKERS, RCBOs AND RCCBs FOR HOUSEHOLD AND SIMILAR USES

1 Scope

This International Standard applies to automatic reclosing devices (ARDs) for household and similar uses, for rated voltage not exceeding 440 V AC, and which are intended to be used in combination with circuit-breakers, RCCBs and RCBOs, and designed either for factory assembly or for assembly on site.

These devices are intended to reclose main protective devices (MPDs) such as circuit-breakers complying with IEC 60898-1 and/or IEC 60898-2, RCCBs complying with IEC 61008-1 and/or IEC 62423, and RCBOs complying with IEC 61009-1 and/or IEC 62423 after tripping of those devices in order to re-establish continuity of service.

This document includes the following types of ARDs:

- ARDs with assessment means, reclosing only if both the prospective line current and the prospective earth-fault current do not exceed given values;
- ARDs with assessment means, reclosing only if the prospective line current does not exceed a given value;
- ARDs with assessment means, reclosing only if the prospective earth-fault current does not exceed a given value;
- ARDs that recloses without any assessment.

NOTE 1 Installation rules define the condition of use of each of the products and the types.

NOTE 2 The assessment cannot substitute the verifications required by IEC 60364-6.

NOTE 3 The requirements and tests for the assessment function in IT systems are under consideration.

This document does not apply to ARDs with multiple settings adjustable by means accessible to the user in normal service.

Devices covered by this document are intended to be suitable for operation by uninstructed persons without the need for maintenance.

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 60065:2014, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60384 (all parts), *Fixed capacitors for use in electronic equipment*

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

IEC 60898-2:2016, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 2: Circuit-breakers for AC and DC operation*

IEC 60947-5-1, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

IEC 60950-1, *Information technology equipment – Safety – Part 1: General requirements*

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 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-16, *Electromagnetic compatibility (EMC) – Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz*

IEC 61008-1:2010, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules*

IEC 61008-1:2010/AMD1:2012

IEC 61008-1:2010/AMD2:2013

IEC 61009-1:2010, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) – Part 1: General rules*

IEC 61009-1:2010/AMD1:2012

IEC 61009-1:2010/AMD2:2013

IEC 61189-2, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 2: Test methods for materials for interconnection structures*

IEC 61543:1995, *Residual current-operated protective devices (RCDs) for household and similar use – Electromagnetic compatibility*

IEC 61543:1995/AMD1:2004

IEC 61543:1995/AMD2:2005

IEC 61558 (all parts), *Safety of transformers, reactors, power supply units and combinations thereof*

IEC 62019, *Electrical accessories – Circuit-breakers and similar equipment for household use – Auxiliary contact units*

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

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