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# Jordfelsbrytare utan inbyggt överströmsskydd för bostadsinstallationer och liknande (RCCB) – Del 1: Allmänna regler

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

Som svensk standard gäller europastandarden EN 61008-1:2012. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61008-1:2012.

**Nationellt förord**

Europastandarden EN 61008-1:2012

består av:

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

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61008-1, utgåva 2, 2004, SS-EN 61008-1/A11, utgåva 1, 2007, SS-EN 61008-1/A12, utgåva 1, 2009, SS-EN 61008-1/A13, utgåva 1, 2012, SS-EN 61008-1/A13 AC1, utgåva 1, 2013 och SS-EN 61008-1/IS1, utgåva 1, 2007, gäller ej fr o m 2017-06-18.

ICS 29.120.50

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EUROPEAN STANDARD

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# EN 61008-1

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English version

## Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) - Part 1: General rules

(IEC 61008-1:2010, modified)

Interrupteurs automatiques à courant différentiel résiduel sans dispositif de protection contre les surintensités incorporé pour usages domestiques et analogues (ID) -
Partie 1: Règles générales
(CEI 61008-1:2010, modifiée)

Fehlerstrom-/Differenzstrom-Schutzschalter ohne eingebauten Überstromschutz (RCCBs) für Hausinstallationen und für ähnliche Anwendungen -
Teil 1: Allgemeine Anforderungen
(IEC 61008-1:2010, modifiziert)



CENELEC

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**



Ref. No. EN 61008-1:2012 E

SEK Svensk Elstandard

## Foreword

This document (EN 61008-1:2012) consists of the text of IEC 61008-1:2010 prepared by IEC/TC 23E "Circuit-breakers and similar equipment for household use", 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 implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-06-18
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2017-06-18

This document supersedes EN 61008-1:2004 + A11:2007 + A12:2009 + A13:2012 + AC:2012 + IS1:2007.

EN 61008-1:2012 includes the following significant technical changes with respect to EN 61008-1:2004:

– complete revision of EMC sequences, including the new test T.2.6 already approved in EN 61543;

– clarification of RCDs current/time characteristics reported in Tables 1 and 2;

– revision of test procedure for $I_{\Delta n}$ between 5 A and 200 A;

– testing procedure regarding the 6mA d.c. current superimposed to the fault current;

– improvement highlighting RCDs with multiple sensitivity;

– tests for the use of RCCBs in IT systems.

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

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.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 61008-1:2010 are prefixed “Z”.

## Endorsement notice

The text of the International Standard IEC 61008-1:2010 was approved by CENELEC as a European Standard with agreed common modifications.

# Annex ZA
(normative)

## Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| CISPR 14-1<br>+ corr. January | 2005<br>2009 | Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission | EN 55014-1 | 2006 |
| IEC 60038 | - | IEC standard voltages | EN 60038 | - |
| IEC 60051 | Series | Direct acting indicating analogue electrical measuring instruments and their accessories | EN 60051 | Series |
| IEC 60060-1<br>+ corr. March<br>+ corr. March | 1989<br>1990<br>1992 | High-voltage test techniques - Part 1: General definitions and test requirements | HD 588.1 S1 [1)] | 1991 |
| IEC 60060-2 | 1994 | High-voltage test techniques - Part 2: Measuring systems | EN 60060-2 [2)] | 1994 |
| IEC 60068-2-30 | 2005 | Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) | EN 60068-2-30 | 2005 |
| IEC 60112<br>+ corr. October<br>+ corr. June | 2003<br>2003<br>2003 | Method for the determination of the proof and the comparative tracking indices of solid insulating materials | EN 60112 | 2003 |
| IEC 60228 | 2004 | Conductors of insulated cables | EN 60228<br>+ corr. May | 2005<br>2005 |
| IEC 60364 | Series | Low-voltage electrical installations | HD 60364 | Series |
| IEC 60417 | Data-base | Graphical symbols for use on equipment | - | - |
| IEC 60529 | - | Degrees of protection provided by enclosures (IP Code) | EN 60529 | - |
| IEC 60664-1 | 2007 | Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests | EN 60664-1 | 2007 |

[1)] HD 588.1 S1 is superseded by EN 60060-1:2010, which is based on IEC 60060-1:2010.
[2)] EN 60060-2 is superseded by EN 60060-2:2011, which is based on IEC 60060-2:2010.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 60695-2-10 | 2000 | Fire hazard testing -<br>Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure | EN 60695-2-10 | 2001 |
| IEC 60884-1 | - | Plugs and socket-outlets for household and similar purposes -<br>Part 1: General requirements | - | - |
| IEC 61009 | Series | Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) | EN 61009 | Series |
| IEC 61543 | 1995 | Residual current-operated protective devices (RCDs) for household and similar use - Electromagnetic compatibility | EN 61543<br>+ corr. December<br>+ A12 | 1995<br>1997<br>2005 |
| ISO 7000 | 1989 | Graphical symbols for use on equipment - Index and synopsis | - | - |

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# INTRODUCTION

This part includes definitions, requirements and tests, covering all types of RCCBs. For the applicability to a specific type this part applies in conjunction with the relevant part, as follows:

Part 2-1: Applicability of the general rules to RCCBs functionally independent of line voltage.

Part 2-2: Applicability of the general rules to RCCBs functionally dependent on line voltage.

# RESIDUAL CURRENT OPERATED CIRCUIT-BREAKERS WITHOUT INTEGRAL OVERCURRENT PROTECTION FOR HOUSEHOLD AND SIMILAR USES (RCCBs) –

## Part 1: General rules

## 1 Scope

This International Standard applies to residual current operated circuit-breakers functionally independent of, or functionally dependent on, line voltage, for household and similar uses, not incorporating overcurrent protection (hereafter referred to as RCCBs), for rated voltages not exceeding 440 V a.c. with rated frequencies of 50 Hz, 60 Hz or 50/60 Hz and rated currents not exceeding 125 A, intended principally for protection against shock hazard.

These devices are intended to protect persons against indirect contact, the exposed conductive parts of the installation being connected to an appropriate earth electrode. They may be used to provide protection against fire hazards due to a persistent earth fault current, without the operation of the overcurrent protective device.

RCCBs having a rated residual operating current not exceeding 30 mA are also used as a means for additional protection in case of failure of the protective means against electric shock.

This standard applies to devices performing simultaneously the functions of detection of the residual current, of comparison of the value of this current with the residual operating value and of opening of the protected circuit when the residual current exceeds this value.

NOTE 1 The requirements for RCCBs are in line with the general requirements of IEC 60755. RCCBs are essentially intended to be operated by uninstructed persons and designed not to require maintenance. They may be submitted for certification purposes.

NOTE 2 Installation and application rules of RCCBs are given in the IEC 60364 series.

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

They are suitable for isolation.

RCCBs complying with this standard, with the exception of those with an uninterrupted neutral, are suitable for use in IT systems.

Special precautions (e.g. lightning arresters) may be necessary when excessive overvoltages are likely to occur on the supply side (for example in the case of supply through overhead lines) (see IEC 60364-4-44).

RCCBs of the general type are resistant to unwanted tripping including the case where surge voltages (as a result of switching transients or induced by lightning) cause loading currents in the installation without occurrence of flashover.

RCCBs of type S are considered to be sufficient proof against unwanted tripping even if the surge voltage causes a flashover and a follow-on current occurs.

NOTE 3 Surge arresters installed downstream of the general type of RCCBs and connected in common mode may cause unwanted tripping.

NOTE 4 For RCCBs having a degree of protection higher than IP20 special constructions may be required.

Particular requirements are necessary for

– residual current operated circuit-breakers with integral overcurrent protection (see IEC 61009-1);
– RCCBs incorporated in or intended only for association with plugs and socket-outlets or with appliance couplers for household or similar general purposes;
– RCCBs intended to be used at frequencies other than 50 Hz or 60 Hz.

NOTE 5 For the time being, for RCCBs incorporated in, or intended only for socket-outlets or plugs, the requirements of this standard in conjunction with the requirements of IEC 60884-1 may be used as far as applicable.

NOTE 6 In DK, plugs and socket-outlets shall be in accordance with the requirements of the heavy current regulations, section 107.

NOTE 7 In the UK, the plug part of an RCCB shall comply with BS 1363-1 and the socket-outlet part(s) of an RCCB should comply with BS 1363-2. In the UK, the plug part and the socket-outlet part(s) of an RCCB need not comply with any IEC 60884-1 requirements.

The requirements of this standard apply for normal environmental conditions (see 7.1). Additional requirements may be necessary for RCCBs used in locations having severe environmental conditions.

RCCBs including batteries are not covered by this standard.

## 2 Normative references

The following referenced documents are indispensable for the application 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 60038, *IEC standard voltages*

IEC 60051 (all parts), *Direct acting indicating analogue electrical measuring instruments and their accessories*

IEC 60060-1:1989, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60060-2:1994, *High-voltage test techniques – Part 2: Measuring systems*

IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-3-4: 2001, *Environmental testing – Part 3-4: Supporting documentation and guidance – Damp heat tests*

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

IEC 60364-5-53:2001, *Electrical installations of buildings – Part 5-53: Selection and erection of electrical equipment –Isolation, switching and control*

IEC 60417, *Graphical symbols for use on 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 60695-2-10:2000, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

IEC 60884-1, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

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

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

CISPR 14-1:2005*, Electromagnetic compatibility –Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*