

**MAJAPIDAMISES JA MUUKS TAOLISEKS KASUTAMISEKS
ETTE NÄHTUD, TÜÜPIDESSE F JA B KUULUVAD
RIKKEVOOLUKAITSELÜLITID SISSEHITATUD
LIIGVOOLUKAITSEGA VÕI ILMA SELLETA**

**Type F and type B residual current operated circuit-
breakers with and without integral overcurrent
protection for household and similar uses
(IEC 62423:2009, modified + corrigendum Dec. 2011)**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN 62423:2012+A11+A12:2022 sisaldab Euroopa standardi EN 62423:2012 ja selle muudatuste A11:2012 ja A12:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 62423:2012+A11+A12:2022 consists of the English text of the European standard EN 62423:2012 and its amendments A11:2012 and A12:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 14.12.2012, muudatused A11 16.04.2021 ja A12 16.09.2022.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 14.12.2012, for A11 16.04.2021 and A12 16.09.2022.
Muudatusega A11 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega A11 A11 . Muudatusega A12 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega A12 A12 . Selles standardis on rahvusvahelise standardi ühismuudatused tähistatud püstkriipsuga teksti vasakul veerisel. Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A11 is indicated in the text by tags A11 A11 . The start and finish of text introduced or altered by amendment A12 is indicated in the text by tags A12 A12 . In this document, the common modifications to the International Standard are indicated by a vertical line in the left margin of the text. The standard is available from the Estonian Centre for Standardisation and Accreditation.

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ICS 29.120.50; 29.120

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English Version

Type F and type B residual current operated circuit-breakers with
and without integral overcurrent protection for household and
similar uses (IEC 62423:2009, modified + corrigendum Dec.
2011)

Interrupteurs automatiques à courant différentiel résiduel de
type B et de type F avec et sans protection contre les
surintensités incorporée pour usages domestiques et
analogues (CEI 62423:2009, modifiée + corrigendum déc.
2011)

Fehlerstrom-/Differenzstrom-Schutzschalter Typ F und
Typ B mit und ohne eingebautem Überstromschutz für
Hausinstallationen und für ähnliche Anwendungen (IEC
62423:2009, modifiziert + corrigendum Dez. 2011)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

Foreword

This document (EN 62423:2012) consists of the text of IEC 62423:2009 + corrigendum 2011 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 (dop) 2013-06-19
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2017-06-19

This document supersedes EN 62423:2009.

EN 62423:2012 includes the following significant technical changes with respect to EN 62423:2009:

- requirements and tests for Type F RCD have been introduced;
- requirements and tests for two-pole Type B RCD have been introduced;
- new additional requirements and tests for Type B RCDs have been introduced to cover requirements and tests for Type F too.

This European Standard is to be read in conjunction with the following standards:

EN 61008-1:2012, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules*

EN 61009-1:2012, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) – Part 1: General rules*

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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 62423:2009 + corrigendum 2011 was approved by CENELEC as a European Standard with agreed common modifications.

A11 Amendment A11 European foreword

This document (EN 62423:2012/A11:2021) has been 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) 2022-03-08
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For the relationship with EU Directive(s), and the standardization requests, see informative Annexes ZZA and ZZB, which are an integral part of this document. **A11**

A12 Amendment A12 European foreword

This document (EN 62423:2012/A12:2022) has been 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) 2023-07-12 implemented at national level by publication of an identical national standard or by endorsement
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This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annexes ZZA and ZZB, which are an integral part of this document.

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. **A12**

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses

Interrupteurs automatiques à courant différentiel résiduel de type B et de type F avec et sans protection contre les surintensités incorporée pour usages domestiques et analogues



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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses

Interrupteurs automatiques à courant différentiel résiduel de type B et de type F avec et sans protection contre les surintensités incorporée pour usages domestiques et analogues

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

TYPE F AND TYPE B RESIDUAL CURRENT OPERATED CIRCUIT-BREAKERS WITH AND WITHOUT INTEGRAL OVERCURRENT PROTECTION FOR HOUSEHOLD AND SIMILAR USES

FOREWORD

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International Standard IEC 62423 has been prepared by subcommittee 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 2007 and constitutes a technical revision. The main changes from the first edition are as follows:

- requirements and tests for Type F RCD have been introduced;
- requirements and tests for two-pole Type B RCD have been introduced;
- new additional requirements and tests for Type B RCDs have been introduced to cover requirements and tests for Type F too.

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

FDIS	Report on voting
23E/679/FDIS	23E/684/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.

This International Standard is to be read in conjunction with the following standards:

IEC 61008-1:1996, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules*

IEC 61009-1:1996, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) – Part 1: General rules*

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site 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.

The contents of the corrigendum 1 (2011-12) have been included in this copy.

The contents of the corrigendum 2 (2021-07) applies to the French language only.

INTRODUCTION

RCCBs and RCBOs designed according to IEC 61008-1 and IEC 61009-1 are suitable in most of the applications. IEC 61008-1 and 61009-1 provide appropriate requirements and tests for general use in household and similar uses. However, the use of new electronic technology in equipment may result in particular residual currents not covered in IEC 61008-1 or IEC 61009-1. This standard covers specific applications where additional requirements and testing are needed.

This standard includes definitions, additional requirements and tests for Type F and Type B RCCBs and/or RCBOs to cover particular situations.

The tests shall first be applied according to IEC 61008-1 for Type F or Type B RCCBs and according to IEC 61009-1 for Type F or Type B RCBOs.

After completion of the tests given either in IEC 61008-1 or IEC 61009-1 the additional tests given in this standard shall be applied in order to show conformity to this standard (see Annex A, Annex B for Type F or Annex C, Annex D for Type B respectively).

The number of samples to be submitted and test sequences to be applied for verification of conformity for Type F RCCBs and Type F RCBOs are given in Annex A and Annex B respectively.

The number of samples to be submitted and test sequences to be applied for verification of conformity for Type B RCCBs and Type B RCBOs are given in Annex C and Annex D respectively.

This standard introduces Type F RCDs (F for Frequency) *deleted text* intended for protection of circuits with frequency inverters supplied between phase and neutral or phase and earthed middle conductor taking into account the necessary features for these particular situations in addition to the cases covered by type A RCDs. Type F RCDs cannot be used where electronic equipment with double bridge rectifiers supplied from two phases is found or if a smooth d.c. residual current can occur.

In case of a frequency inverter, e.g. used for motor speed control, supplied between phase and neutral, a composite residual current including the power frequency, the motor frequency and the chopper clock frequency of the frequency inverter may occur in addition to alternating or pulsating d.c. residual currents.

This standard introduces Type B RCDs to be used in case of residual pulsating rectified direct current which results from one or more phases, and smooth d.c. residual current in addition to the cases covered by Type F RCDs. For these applications, two, three or four pole Type B RCDs can be used.

TYPE F AND TYPE B RESIDUAL CURRENT OPERATED CIRCUIT-BREAKERS WITH AND WITHOUT INTEGRAL OVERCURRENT PROTECTION FOR HOUSEHOLD AND SIMILAR USES

1 Scope

The scope of EN 61008-1 and EN 61008-2-1 or EN 61009-1 and EN 61009-2-1 applies with the following additions.

This standard specifies requirements and tests for Type F and Type B RCDs (Residual current devices). Requirements and tests given in this standard are in addition to the requirements of Type A residual current devices according to EN 61008-2-1 or EN 61009-2-1. This standard can only be used together with EN 61008-1 and EN 61009-1.

Type F RCCBs (Residual Current Circuit Breaker) and Type F RCBOs (Residual current Circuit Breaker with Overcurrent protection) *deleted text* are intended for installations when frequency inverters are supplied between phase and neutral or phase and earthed middle conductor and are able to provide protection in case of alternating residual sinusoidal at the rated frequency, pulsating direct residual currents and composite residual currents that may occur.

Type B RCCBs and Type B RCBOs are able to provide protection in case of alternating residual sinusoidal currents up to 1 000 Hz, pulsating direct residual currents and smooth direct residual currents.

Type F and type B RCDs have high resistance against unwanted tripping even if the surge voltage causes a flashover and a follow-on current occurs and in case of inrush residual currents with a maximum duration of 10 ms which can occur in case of switching ON electronic equipment or EMC-filters.

RCDs according to this standard are not intended to be used in d.c. supply systems.

Further requirements and tests for products to be used in situations where the residual current was not intended to be covered in EN 61008-1 or EN 61009-1 are under consideration.

deleted text

The complete test sequence for type test of Type F RCCBs and Type F RCBOs is given in Tables A.1 and B.1 respectively. The complete test sequence for type test of Type B RCCBs and Type B RCBOs is given in Tables C.1 or D.1 respectively.

NOTE 1 Throughout the document, the term RCD refers to RCCBs and RCBOs.

NOTE 2 *deleted*

NOTE 3 Type F and type B RCDs have high resistance against unwanted tripping, even if the surge voltage causes a flashover and a follow-on current occurs, and in case of inrush residual currents with a maximum duration of 10 ms which can occur in case of switching ON electronic equipment or EMC-filters.

2 Normative references

Normative references to international publications are listed in Annex ZA.