



NSAI
Standards

Irish Standard
I.S. EN 62423:2012&A11:2021

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

I.S. EN 62423:2012&A11:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 62423:2012/A11:2021

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This document is based on:

EN 62423:2012

Published:

2012-12-14

This document was published under the authority of the NSAI and comes into effect on:

2021-05-03

ICS number:

NOTE: If blank see CEN/CENELEC cover page

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National Foreword

I.S. EN 62423:2012&A11:2021 is the adopted Irish version of the European Document EN 62423:2012, Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses

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EUROPEAN STANDARD

EN 62423:2012/A11

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2021

ICS 29.120; 29.120.50

English Version

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

Fehlerstrom-/Differenzstrom-Schutzschalter Typ F und Typ
B mit und ohne eingebautem Überstromschutz für
Hausinstallationen und für ähnliche Anwendungen

This amendment A11 modifies the European Standard EN 62423:2012; it was approved by CENELEC on 2021-03-08. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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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 62423:2012/A11:2021 (E)

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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 (dop) 2022-03-08
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2024-03-08
standards conflicting with this document
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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.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62423

December 2012

ICS 29.120; 29.120.50

Supersedes EN 62423:2009

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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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 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 (dow) 2017-06-19
with this document have to be withdrawn

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.



IEC 62423

Edition 2.0 2009-11

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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IEC 62423

Edition 2.0 2009-11

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**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

W

ICS 29.120; 29.120.50

ISBN 978-2-88910-700-1

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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 of December 2011 have been included in this copy.

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) with rated frequency 50 Hz or 60 Hz 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 IEC 61008-1 and IEC 61009-1 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. This standard can only be used together with IEC 61008-1 and IEC 61009-1.

Type F RCCBs (Residual Current Circuit Breaker) and Type F RCBOs (Residual current Circuit Breaker with Overcurrent protection) with rated frequency 50 Hz or 60 Hz 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.

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 IEC 61008-1 or IEC 61009-1 are under consideration.

For the purpose of manufacturer's declaration or verification of conformity, type tests should be carried out in test sequences in compliance with Annex A, Annex B, Annex C or Annex D of this standard.

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 Requirements for 1 pole with solid neutral are under consideration.

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

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.

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