



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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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
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62423:2012/A11

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)

Contents	Page
European foreword	3
1 Modification to 9.2.4, “Verification of the RCD after test sequences”	4
2 Addition of 9.2.5, “Electromagnetic Compatibility (EMC)”	4
3 Modification to Annexes A, B, C and D	4
4 Modification to Annexes A and B	5
5 Modifications to Annex C, “Number of samples to be submitted and test sequences to be applied for verification of conformity for Type B RCCBs”	5
6 Modifications to Annex D, “Number of samples to be submitted and test sequences to be applied for verification of conformity for Type B RCBOs”	6
7 Modification to Annex ZA, “Normative references to international publications with their corresponding European publications”	7
8 Modifications to Annex ZZ, “Coverage of Essential Requirements of EU Directives”	8

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
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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.

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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**

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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	9
4 Classification.....	9
4.1 According to behaviour in presence of d.c. components	9
5 Characteristics	10
5.1 Type F residual current device	10
5.2 Type B residual current device	10
5.2.1 General	10
5.2.2 Standard values of break time and non-actuating time for residual direct currents which result from rectifying circuits and for residual smooth direct current.....	10
5.2.3 Values of tripping current according to frequencies which differ from the rated frequency 50/60 Hz.....	11
6 Marking and other product information.....	11
6.1 Marking for Type F RCDs	11
6.2 Marking for Type B RCDs.....	11
7 Standard conditions for operation in service and for installation.....	11
8 Conditions for construction and operation.....	12
8.1 Conditions for Type F and Type B RCDs – Requirements for operation in case of sinusoidal residual currents comprising of multi-frequency components resulting from control equipment supplied from single phase	12
8.2 Conditions for Type B RCDs.....	12
8.2.1 Operation in response to the type of residual current.....	12
8.3 Behaviour of Type F and Type B RCDs	13
8.3.1 Behaviour of RCDs in the case of surge residual currents	13
8.3.2 Behaviour of RCDs in the case of inrush residual currents.....	14
8.3.3 Behaviour in case of residual pulsating direct currents in presence of a standing smooth direct current of 0,01 A.....	14
9 Tests.....	14
9.1 Tests for Type F and Type B RCDs	14
9.1.1 General	14
9.1.2 Verification of the correct operation in case of a steady increase of composite residual current.....	14
9.1.3 Verification of the correct operation in case of sudden appearance of composite residual current.....	15
9.1.4 Verification of the correct operation for four-pole Type F RCD powered on two poles only	15
9.1.5 Verification of behaviour at surge currents up to 3 000 A (8/20 µs surge current test)	15
9.1.6 Verification of behaviour in the case of inrush residual currents.....	16
9.1.7 Verification of the correct operation in case of residual pulsating direct currents in presence of a standing smooth direct current of 0,01 A	16
9.2 Tests for Type B RCDs.....	16

9.2.1	Verification of the operating characteristic at the reference temperature (20 ± 5) °C	16
9.2.2	Tests at the temperature limits	19
9.2.3	Verification of the correct operation for three- and four-pole Type B RCDs powered on two poles only	19
9.2.4	Verification of the RCD after test sequences	19
Annex A (normative)	Number of samples to be submitted and test sequences to be applied for verification of conformity for type F RCCBs	28
Annex B (normative)	Number of samples to be submitted and test sequences to be applied for verification of conformity for Type F RCBOs	30
Annex C (normative)	Number of samples to be submitted and test sequences to be applied for verification of conformity for Type B RCCBs	32
Annex D (normative)	Number of samples to be submitted and test sequences to be applied for verification of conformity for Type B RCBOs	34
Annex E (normative)	Routine tests for Type F and Type B RCDs	36
Bibliography	37

Figure 1 – Example of a test circuit for the verification of correct operation in case of residual sinusoidal alternating currents composed of multi-frequency components resulting from single-phase supplied speed motor control equipment	20
Figure 2 – Test circuit for the verification of the behaviour of the RCD in case of inrush residual currents	21
Figure 3 – Test circuit for the verification of correct operation in case of residual sinusoidal alternating current up to 1 000 Hz	22
Figure 4 – Test circuit for 2-, 3- and 4-pole Type B RCD to verify the correct operation in case of a residual alternating current superimposed on a smooth direct current	23
Figure 5 – Test circuit for 2-, 3- and 4-pole Type B RCD to verify the correct operation in case of a residual pulsating direct current superimposed on a smooth direct current	24
Figure 6a – Test circuit for 2-, 3- and 4-pole Type B to verify the correct operation in case of residual pulsating direct currents which may result from rectifying circuits supplied from two phases	25
Figure 6b – Test circuit for 3- and 4-pole Type B RCD to verify the correct operation in case of residual pulsating direct currents which may result from rectifying circuits supplied from three phases	26
Figure 6 – Test circuit for Type B RCD to verify the correct operation in case of residual pulsating direct currents which may result from rectifying circuits	26
Figure 7 – Test circuit for 2-, 3- and 4-pole Type B RCD to verify the correct operation in case of a residual smooth direct current	27

Table 1 – Type B RCDs – Standard values of break time and non-actuating time for residual direct currents which result from rectifying circuits and for residual smooth direct current	10
Table 2 – Type B RCDs – Residual non-operating and operating current according to frequencies which differ from the rated frequency 50/60 Hz	11
Table 3 – Different frequency component values of test currents and starting current values (I_{Δ}) for verifying the operating in case of steady increased residual current	14
Table 4 – Operating current ranges for composite residual current	15
Table A.1 – Test sequences for Type F RCCBs	29
Table B.1 – Test sequences for Type F RCBOs	31
Table C.1 – Test sequences for Type B RCCBs	32

Table D.1 – Test sequences for Type B RCBOs	34
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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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