



**NSAI**  
Standards

Irish Standard  
I.S. EN 61008-1:2004

Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) -- Part 1: General rules (IEC 61008-1:1996 (MOD) + A1:2002 (MOD))

## I.S. EN 61008-1:2004

*Incorporating amendments/corrigenda issued since publication:*

EN 61008-1:2004/IS1:2007  
EN 61008-1:2004/A11:2007  
EN 61008-1:2004/A12:2009

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<p><i>This document replaces:</i> En 61008-1:1994 + A2:1995 + A12:1998 + A13:1998 + A14:1998 + A17:2000</p>	<p><i>This document is based on:</i> EN 61008-1:2004</p>	<p><i>Published:</i> 29 September, 2004</p>
<p>This document was published under the authority of the NSAI and comes into effect on:  24 November, 2004</p>		<p>ICS number: 29.120.50</p>
<p><b>NSAI</b> 1 Swift Square, Northwood, Santry Dublin 9</p>	<p>T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie  W <b>NSAI.ie</b></p>	<p><b>Sales:</b> T +353 1 857 6730 F +353 1 857 6729 W standards.ie</p>
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61008-1/A12**

February 2009

ICS 29.120.50

English version

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

Interrupteurs automatiques  
à courant différentiel résiduel  
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Partie 1: Règles générales

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

This amendment A12 modifies the European Standard EN 61008-1:2004; it was approved by CENELEC on 2008-12-01. 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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This amendment 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 Central Secretariat has the same status as the official versions.

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# CENELEC

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

**Central Secretariat: avenue Marnix 17, B - 1000 Brussels**

**I.S. EN 61008-1:2004**

EN 61008-1:2004/A12:2009

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**Foreword**

This amendment to the European Standard EN 61008-1:2004 was prepared by the Technical Committee CENELEC TC 23E, Circuit breakers and similar devices for household and similar applications.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A12 to EN 61008-1:2004 on 2008-12-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2009-12-01
  - latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2011-12-01
-

**Contents Add:****8.Z2** Electromagnetic compatibility (EMC)**9.Z2** Electromagnetic compatibility (EMC)**8 Requirements for construction and operation****8.Z1** Replace the second paragraph by the following:*Compliance is checked by the tests of 9.Z1.***8.Z2** Add the following new Subclause 8.Z2:**8.Z2 Electromagnetic compatibility (EMC)***RCCBs shall comply with the relevant EMC requirements.**Compliance is checked by the tests of 9.Z2.***9 Tests****9.21.1.4** Replace the last paragraph by the following new paragraph:*The half-wave current  $I_1$ , starting from zero, being steadily increased at an approximate rate of  $1,4 I_{\Delta n} / 30$  A per second for RCCBs with  $I_{\Delta n} > 0,01$  A and  $2 I_{\Delta n} / 30$  A per second for RCCBs with  $I_{\Delta n} \leq 0,01$  A, the device shall trip before this half-wave current  $I_1$  reaches a value not exceeding  $1,4 I_{\Delta n}$  or  $2 I_{\Delta n}$  respectively.***9.Z2** Add the following new Subclause 9.Z2:**9.Z2 Electromagnetic compatibility (EMC)***EMC tests shall be performed according to EN 61543 as follows:*

- *Tests listed in the following table are covered by this standard and have not to be repeated:*

**Table Z4 – Tests to be applied for EMC**

Reference to Tables 4 and 5 of EN 61543	Electromagnetic phenomena	Tests of EN 61008-1
T 1.3	Voltage amplitude variations	9.9.5 and 9.17
T 1.4	Voltage unbalance	9.9.5 and 9.17
T 1.5	Power frequency variations	9.2
T 1.8	Magnetic fields	9.11 and 9.18
T 2.4	Current oscillatory transients	9.19

- The remaining tests in Tables 4, 5 and 6 of EN 61543 shall be done according to the test sequences Z1, Z2 and Z3 listed in Annex A of this standard.

For devices containing a continuously operating oscillator, the test of EN 55014 shall be carried out on the samples prior to the tests of EN 61543.

**Figure Z3** Replace the title with 'Figure Z3 – Test cycle for low temperature test (9.Z1)'

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**Annex A Test sequence and number of samples to be submitted for certification purposes****Table A.1** Replace existing row 'H' by the following:

<b>Test sequence</b>	<b>Clause or subclause</b>	<b>Test (or Inspection)</b>
<i>H</i>	<i>9.Z1</i>	<i>Verification of correct operation at low ambient air temperature of RCCBs for use in the range of -25 °C to +40 °C</i>

Add the following rows Z1, Z2, Z3 and note a):

<b>Test sequence</b>	<b>Clause or subclause</b>	<b>Test (or Inspection)</b>
<i>Z1<sup>a)</sup></i>	<i>EN 61543 Table 4 - T1.1 EN 61543 Table 4 - T1.2 EN 61543 Table 5 - T2.3</i>	<i>Harmonics, interharmonics Signalling voltage Conducted unidirectional transients of the ms and µs time scale</i>
<i>Z2</i>	<i>EN 61543 Table 5 - T2.1 and T2.5 EN 61543 Table 5 - T2.2</i>	<i>Conducted oscillatory voltages or currents Conducted unidirectional transients of the ns time scale (burst)</i>
<i>Z3</i>	<i>EN 61543 Table 5 - T2.6 EN 61543 Table 6 - T3.1</i>	<i>Conducted common mode disturbances in the frequency range lower than 150 kHz Electrostatic discharges</i>
<i>a) For devices containing a continuously operating oscillator, the test of EN 55014 shall be carried out on the samples prior to the tests of this sequence.</i>		

**Table A.2** Add the following rows Z1, Z2, Z3 and note e):

<b>Test sequence</b>	<b>Number of samples</b>	<b>Minimum number of accepted samples<sup>a) b)</sup></b>	<b>Number of samples for repeated tests<sup>c)</sup></b>
<i>Z1<sup>e)</sup></i>	<i>3</i>	<i>2</i>	<i>3</i>
<i>Z2<sup>e)</sup></i>	<i>3</i>	<i>2</i>	<i>3</i>
<i>Z3<sup>e)</sup></i>	<i>3</i>	<i>2</i>	<i>3</i>
<i>e) On request of the manufacturer the same set of samples may be subjected to more than one of these test sequences.</i>			

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**Table A.3** Replace Table A.3 by the following new table:**Table A.3**

Test sequence	Number of samples according to number of poles <sup>a) g)</sup>		
	2 poles <sup>b)</sup>	3 poles <sup>f)</sup>	4 poles
A	1 max. rating $I_n$ min. rating $I_{\Delta n}$	1 max. rating $I_n$ min. rating $I_{\Delta n}$	1 max. rating $I_n$ min. rating $I_{\Delta n}$
B	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
C	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
D <sub>0</sub> + D <sub>1</sub>	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
D <sub>0</sub>	1 for all other ratings of $I_{\Delta n}$ with max. $I_n$		
D <sub>2</sub>	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
E	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
F	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
	3 min. rating $I_n$ max. rating $I_{\Delta n}$	3 min. rating $I_n$ max. rating $I_{\Delta n}$	3 min. rating $I_n$ max. rating $I_{\Delta n}$
G	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
	3 min. rating $I_n$ max. rating $I_{\Delta n}$	3 min. rating $I_n$ max. rating $I_{\Delta n}$	3 min. rating $I_n$ max. rating $I_{\Delta n}$
H <sup>h)</sup>	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$	3 max. rating $I_n$ min. rating $I_{\Delta n}$
	3 min. rating $I_n$ max. rating $I_{\Delta n}$	3 min. rating $I_n$ max. rating $I_{\Delta n}$	3 min. rating $I_n$ max. rating $I_{\Delta n}$
Z1 <sup>h)</sup>	3 samples of the same rating chosen at random	3 samples of the same rating chosen at random	3 samples of the same rating chosen at random
Z2 <sup>h)</sup>	3 samples of the same rating chosen at random	3 samples of the same rating chosen at random	3 samples of the same rating chosen at random
Z3 <sup>h)</sup>	3 samples of the same rating chosen at random	3 samples of the same rating chosen at random	3 samples of the same rating chosen at random

a) If a test is to be repeated according to the minimum performance criteria of A.2, a new set of samples is used for the relevant test. In the repeated test all test results must be acceptable.  
 b) If only 3-pole and/or 4-pole RCBBs are submitted, this column shall also apply to a set of samples with the smallest number of poles.  
 c) Void.  
 d) Void.  
 e) Void.  
 f) This column is omitted when 4-pole RCBBs have been tested.  
 g) If only one value of  $I_{\Delta n}$  is submitted, min. rating  $I_{\Delta n}$  and max. rating  $I_{\Delta n}$  are replaced by  $I_{\Delta n}$ .  
 h) If a range of RCBBs of the same fundamental design are submitted, only the samples with the maximum number of poles need to be tested.

**A.3.Z1** Add the following new Subclause A.3.Z1 after A.3.2:

**A.3.Z1** For a sub-range of RCCBs of the same fundamental design as those described in A.3.1 and tested according to A.3.2 but of a different time-delay classification according to 4.7, subsequently submitted for tests, the additional number of samples and sequences shall be as given in Table A.3, except that sequences A, B, may be omitted.

**A.3.Z2** Add the following new Subclause A.3.Z2 after A.3.Z1:

**A.3.Z2** For a sub-range of RCCBs of the same fundamental design as those described in A.3.1, and tested according to A.3.2, but of a different classification according to behaviour due to d.c. components (AC or A type according to 4.6), subsequently submitted for tests, the additional number of samples and sequences may be reduced according to Table A.Z1.

**Table A.Z1** Add the following new Table A.Z1 after A.3.Z2:

**Table A.Z1 – Test sequences for RCCBs of different classification according to 4.6**

Test sequence	Number of samples according to the number of poles <sup>a)</sup>		
	2-poles <sup>b)</sup>	3-poles <sup>e)</sup>	4-poles
$D_0 + D_1$	1 max. rating $I_n$ min. rating $I_{\Delta n}$	1 max. rating $I_n$ min. rating $I_{\Delta n}$	1 max. rating $I_n$ min. rating $I_{\Delta n}$
$D_0$	1 for all other ratings of $I_{\Delta n}$ with max. $I_n$		
a) If a test is to be repeated according to the minimum performance criteria of A.2, a new set of samples is used for the relevant test. In the repeated test all test results must be acceptable. b) If only 3-pole or 4-pole RCCBs are submitted, this column shall also apply to a set of samples with the smallest number of poles. c) Void. d) Void. e) This column is omitted when 4-pole RCCBs are being tested.			

**Annex E (normative) List of tests, additional test sequences and numbers of samples for verification of compliance of RCCBs with the requirements of electromagnetic compatibility (EMC)**

**Delete** whole Annex E.





## Interpretation Sheet 1

### EN 61008-1:2004


English version

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#### Foreword

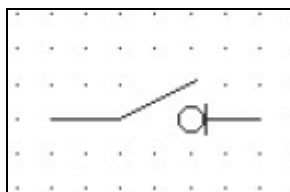
This Interpretation Sheet to the European Standard EN 61008-1:2004 was prepared by the Interpretation Panel of the Technical Committee CENELEC TC 23E, Circuit breakers and similar devices for household and similar applications. The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC on 2007-05-07.

#### Subclause 6.Z.1, last but one paragraph

The suitability for isolation, which is provided by all RCCBs of this standard, may be indicated by the symbol  on the device. When affixed, this marking may be included in a wiring diagram, where it may be combined with symbols of other functions.

#### Question:

Is the use of the following Graphical Symbols, in the Connection Diagrams, acceptable?



According to IEC 60617-7-DB-12M, *Graphical Symbols for Diagrams*, this symbol is applicable for switch-disconnector function.

As the suitability for isolation is provided by the compliance of RCCB with EN 61008-1, it may be indicated by the relevant symbol on the device.

Therefore, this marking may be included in a wiring diagram, as it is the combination of the symbols for the switch and the disconnector functions.

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**Interpretation:**

The answer is YES according to the following standard:

IEC 60617-7-DB-12M 07-13-08, *Graphical Symbols for Diagrams*

Therefore this symbol may be used as an alternative solution to the symbol given in EN 61008-1 for the connection diagram.

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August 2007

EUROPEAN STANDARD

**EN 61008-1/A11**

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2007

ICS 29.120.50

English version

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**CENELEC**

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**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

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