

**SLOVENSKI
STANDARD**

**SIST EN 61008-
1:1996/A11:1997**

prva izdaja
november 1997

Electrical accessories - Residual current operated circuit breakers without integral overcurrent protection of household and similar uses (RCCB's) - Part 1: General rules - Amendment A11

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ICS 29.120.50

Referenčna številka
SIST EN 61008-1:1996/A11:1997(en)

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Descriptors: Electrical household accessory, low-voltage equipment, residual current operated switching device, definition, characteristics, construction, tests

English version

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

Petit appareillage électrique
Interrupteurs automatiques à courant
différentiel résiduel pour usages
domestiques et analogues sans
dispositif de protection contre les
surintensités incorporé (ID)

Elektrisches Installationsmaterial
Fehlerstrom-/Differenzstrom-
Schutzschalter ohne eingebauten
Überstromschutz für Hausinstallationen
und für ähnliche Anwendungen
Teil 1: Allgemeine Anforderungen

Partie 1: Règles générales

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This amendment A11 modifies the European Standard EN 61008-1:1994; it was approved by CENELEC on 1995-07-04. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

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

Foreword

This amendment was prepared by the Technical Committee CENELEC TC 23E, Circuit breakers and similar devices for household and similar applications.

Its aim is to add a type of RCCB able to operate at temperatures down to $-25\text{ }^{\circ}\text{C}$ with unified requirements acceptable by all members of CENELEC.

The text of the draft was submitted to the formal vote and was approved by CENELEC as amendment A11 to EN 61008-1:1994 on 1995-07-04.

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) 1996-07-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2000-07-01

For products which have complied with EN 61008-1:1994 + A2:1995 before 2000-07-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2005-07-01.

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REPUBLIKA SLOVENIJA
AGENCIJA REPUBLIKE SLOVENIJE
ZA VARNOST IN KVALITETO
PROJEKTA
SIST EN 61008-1:1996/A11:1997
SIST EN 61008-1:1996/A11:1997

4 Classification

Add the following subclause :

4.11 *According to the range of ambient air temperature*

- RCCB's for use at ambient air temperatures between -5°C and $+40^{\circ}\text{C}$;
- RCCB's for use at ambient air temperatures between -25°C and $+40^{\circ}\text{C}$.

5 Characteristics of RCCB's

5.1 *Summary of characteristics*

Add the following item to the list of common characteristics :

- ranges of ambient air temperature (see 5.3.13)

5.3 *Standard and preferred values*

Add the following subclause :


5.3.13 *Standard ranges of ambient air temperature*

The standard ranges of ambient air temperature are

- -5°C to $+40^{\circ}\text{C}$;
- -25°C to $+40^{\circ}\text{C}$.

6 Marking and other product information

Add the following item :

- s) the symbol of use at ambient air temperatures between -25°C and $+40^{\circ}\text{C}$  (the value -25 included in the snow flake symbol according to figure 0027 of ISO 7000), if relevant.

Modify the third sentence after s) to read :

The information under a), b), c), k), l), p) and s) may be marked on the side or on the back of the device and be visible only before the device is installed.

7 Standard conditions for operation in service and for installation

7.1 Standard conditions

In table 2, second column, add to "-5 °C to +40 °C²⁾", in the same box, the range "-25 °C to +40 °C²⁾".

Modify footnote 7) to read :

7) Extreme limits of -20 °C and 60 °C, for RCCB's for use in the range of -5 °C to +40 °C and of -35 °C and 60 °C, for RCCB's for use in the range of -25 °C to +40 °C, are admissible during storage and transportation. These conditions should be taken into account in the design of the device.

8 Requirements for construction and operation

Add the following subclause :

8.17 Behaviour of RCCB's at low ambient air temperatures

RCCB's for use in the range of -25 °C to +40 °C (see 4.11) shall operate reliably at low temperatures.

Compliance is checked by the tests of 9.24.

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9 Tests

9.1 General

9.1.1 Table 7 - List of type tests - add the following dashed item :

- Behaviour at low ambient air temperatures of RCCB's classified for use in the range of -25 °C to +40 °C 9.24

Add the following subclause :

9.24 Verification of the correct operation at low ambient air temperatures for RCCB's for use at temperatures between -25 °C and +40 °C

Enclosed-type RCCB's are tested in their enclosure, unenclosed-type RCCB's are mounted in an individual enclosure with a degree of protection IP55, and are connected as for normal use (see figure 4a).

NOTE 1: No drain hole in the enclosure shall be opened for this test.

NOTE 2: RCCB's tested in enclosures IP55 may also be used in enclosures of a degree of protection other than IP55 within the temperature range of -25 °C to +40 °C.

The RCCB (including the enclosure) is brought into a suitable test chamber with an ambient air temperature of $(23 \pm 2)^\circ\text{C}$ and a relative humidity of $(93 \pm 3)\%$. The volume ratio of the test chamber to the test samples (including enclosures) shall be greater than 50.

The RCCB is in the ON-position without load and shall be subjected to the following cycle (see figure Z3).

For the first 6 h (stabilization period) the temperature is kept at $(23 \pm 2)^\circ\text{C}$ and the humidity at $(93 \pm 3)\%$. Within the next 6 h the ambient air temperature is decreased to $(-25 \pm 2)^\circ\text{C}$ without any supply of humidity. This temperature of $(-25 \pm 2)^\circ\text{C}$ is kept for 6 h. Within the next 6 h the temperature is increased to $(+23 \pm 2)^\circ\text{C}$ and the relative humidity is increased to $(93 \pm 3)\%$ (end of the first cycle). This cycle is performed five times.

During these cycles the RCCB shall not trip.

During the fifth cycle, at the end of the period at $(-25 \pm 2)^\circ\text{C}$, an a.c. residual current is passed through one pole of the RCCB (see figure 4a) :

- for RCCB's of the general type, the residual current is calibrated to $1,25 I_{\Delta n}$ and established by closing S_2 . One test only is made on one pole taken at random. The break time measured shall not exceed the value specified in table 1 for $I_{\Delta n}$;
- for RCCB's of type S the residual current is calibrated to $1,25 \times 2 I_{\Delta n}$ and established by closing S_2 . One test only is made on one pole taken at random. The break time measured shall not exceed the value specified in table 1 for $2 I_{\Delta n}$.

In addition, RCCB's of type A are tested with pulsating d.c. residual currents immediately after the above test with a.c. residual current, the test circuit corresponding to figure 4b :

- for RCCB's of the general type, the residual current is calibrated to $1,25 \times 2 I_{\Delta n}$ for RCCB's with $I_{\Delta n} \leq 0,01 \text{ A}$, and to $1,25 \times 1,4 I_{\Delta n}$ for RCCB's with $I_{\Delta n} > 0,01 \text{ A}$. The current delay angle shall be $= 0^\circ$, the position of S_3 is set at random, and the current is established by closing S_2 . One test only is made on one pole taken at random. The break time measured shall not exceed the value specified in table 1 for $I_{\Delta n}$;
- for RCCB's of type S the residual current is calibrated to $1,25 \times 1,4 \times 2 I_{\Delta n}$. The current delay angle shall be $= 0^\circ$, the position of S_3 is set at random, and the current is established by closing S_2 . One test only is made on one pole taken at random. The break time measured shall not exceed the value specified in table 1 for $2 I_{\Delta n}$.

After these tests a visual inspection shall show that the materials have not undergone deterioration impairing the further use of the RCCB and it shall be possible to switch on the RCCB, without the presence of any residual current, at the temperature of -25°C .

Figures

Figure 4a - Add the following dashed item in the title :

- behaviour at low ambient air temperature of RCCB's for use in the range of -25 °C to +40 °C (9.24)

Add :

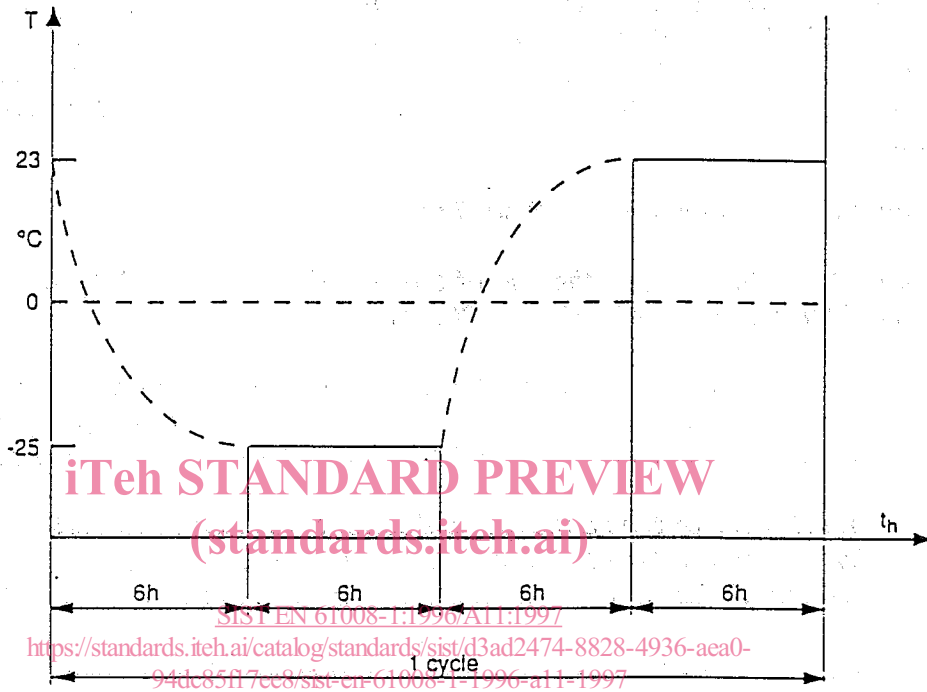


Figure Z3 - Test cycle for low temperature test (9.24)

Annex A

Add the following test sequence to Table A.1 - Test sequences :

H 9.24 Verification of correct operation at low ambient air temperature of RCCB's for use in the range of -25 °C to +40 °C

Add the following test sequence to Table A.2 - Number of samples for full test procedure :

H 3 2 3

Add the following test sequence to Table A.3 - Number of samples for simplified test procedure :

H ^{h)}	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) If a range of RCCB's of the same fundamental design are submitted, only the samples with the maximum number of poles need to be tested.