AS/NZS 61009.1:2004
(Incorporating Amendment No. 1)

AS/NZS 61009.1:2004

Australian/New Zealand Standard™

Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)

Part 1: General rules (IEC 61009-1, Ed. 2.1 (2003) MOD)

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-004, Electrical Accessories. It was approved on behalf of the Council of Standards Australia on 25 June 2004 and on behalf of the Council of Standards New Zealand on 9 July 2004.
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The following are represented on Committee EL-004:

Australasian Railway Association
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Canterbury Manufacturers Association, New Zealand
Consumer Electronic Suppliers Association
Consumers' Federation of Australia
Electrical Regulatory Authorities Council
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Part 1: General rules (IEC 61009-1, Ed. 2.1 (2003) MOD)

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-004, Electrical Accessories to supersede AS/NZS 61009.1:1999, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)* Part 1: *General rules.*

This Standard incorporates Amendment No. 1 (July 2007). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide Australian and New Zealand electrical industries, manufacturers and regulatory bodies with safety requirements for residual current operated circuit-breakers with integral overcurrent protection for household and similar uses, and which may be used as the bases for approval for sale or for connection to supply in Australia and New Zealand.

This Standard is an adoption with national modifications and has been reproduced from IEC 61009-1, Ed. 2.1 (2003), *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) — Part 1*: *General rules* which includes Amendment 1:2002 and Corrigendum 1.

Variations to IEC 61009-1 to take account of Australian/New Zealand conditions are indicated at the appropriate places throughout this standard. Strikethrough (~~example~~) identifies IEC text, tables and figures which, for the purposes of this Australian/New Zealand Standard, are deleted. Where text, tables or figures are added, each is set in its proper place and identified by shading (example). Added figures are not themselves shaded, but are identified by a shaded border.

Variations made to IEC 61009-1 form the Australian national variations for the purposes of the CB scheme for recognition of testing to standards for safety of electrical equipment. These variations have been incorporated in the body of the standard. They are listed in Annex ZZ for easy reference.

This Standard will exist in parallel with AS/NZS 3111, *Approval and test specification—Miniature overcurrent circuit-breakers* and AS/NZS 3190*, Approval and test specification—Residual current devices (current-operated earth-leakage devices)* and any revisions thereof. Both this Standard and a combination of AS/NZS 3111 and AS/NZS 3190 are acceptable for RCCBs.

The essential safety requirements in AS/NZS 3820 that could be applicable to RCCBs are covered by this Standard taken in conjunction with any other relevant requirements affecting safety.

The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

In this Standard, the following print types are used:

– requirements proper: in arial type;

– *test specifications: in italic type;*

– explanatory matter: in smaller arial type.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) A full point should be substituted for a comma when referring to a decimal marker.

The numbering of clauses, subclauses, notes, tables, figures and annexes follows that of IEC 61009-1. To allow for additional material to be introduced by Australia and New Zealand, the numbers 201 to 300 are used to number further clauses, subclauses, notes, tables and figures in this Standard.

This scheme has been introduced to reduce the likelihood of the IEC and Australia or New Zealand using the same clause or figure number for differing requirements. The use of the word VOID indicates that the IEC requirement is not used in Australia or New Zealand. The word is also used where the deletion of a particular requirement such as a Table would lead to the consequential renumbering of references within the body of the Standard and succeeding tables. Where Australia and New Zealand have added a requirement or made a change to a particular clause of IEC 61009-1 that clause number remains unchanged.

This Standard does not purport to include all the necessary conditions of a contract.

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Any table, figure or text of the international standard that is struck through is not part of this standard. Any Australian/New Zealand table, figure or text that is added is part of this standard and is identified by shading.

1 Scope

This International Standard applies to residual current operated circuit-breakers with integral overcurrent protection functionally independent of, or functionally dependent on, line voltage for household and similar uses (hereafter referred to as RCBOs), for rated voltages not exceeding 440 V a.c., rated currents not exceeding 125 A and rated short-circuit capacities not exceeding 25 000 A for operation at 50 Hz or 60 Hz.

These devices are intended to protect people against indirect contact, the exposed conductive parts of the installation being connected to an appropriate earth electrode and to protect against overcurrents the wiring installations of buildings and similar applications. They may be used to provide protection against fire hazards due to a persistent earth fault current, without the operation of the overcurrent protective device.

RCBOs having a rated residual operating current not exceeding 30 mA are also used as a means for additional protection in the case of failure of the protective means against electric shock.

This standard applies to devices performing simultaneously the function of detection of the residual current, of comparison of the value of this current with the residual operating value and of opening of the protected circuit when the residual current exceeds this value, and also of performing the function of making, carrying and breaking overcurrents under specified conditions.

NOTE 1 The content of the present standard related to the operation under residual current conditions is based on IEC 61008.

The content of the present standard related to protection against overcurrents is based on IEC 60898.

NOTE 2 RCBOs are essentially intended to be operated by uninstructed persons and designed not to require maintenance. They may be submitted for certification purposes.

NOTE 3 Installation and application rules of RCBOs are given in IEC 60364.

RCBOs of the general type are resistant to unwanted tripping, including the case where surge voltages (as a result of switching transients or induced by lightning) cause loading currents in the installation without occurrence of flashover.

RCBOs of the S type are considered to be sufficiently proof against unwanted tripping even if the surge voltage causes a flashover and a follow-on current occurs.

NOTE 4 Surge arresters installed downstream of the general type of RCBOs and connected in common mode may cause unwanted tripping.

NOTE 5 RCBOs within the scope of the present standard are considered as suitable for isolation (see 8.1.3).

Special precautions (e.g. lightning arresters) may be necessary when excessive overvoltages are likely to occur on the supply side (for example in the case of supply through overhead lines) (see IEC 60364-4-443).

NOTE 6 For RCBOs having a degree of protection higher than IP20 special constructions may be required.