AS/NZS 61008.1:2015

Australian/New Zealand Standard™

Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs)

Part 1: General rules (IEC 61008-1, Ed. 3.2 (2013) 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 12 February 2015 and on behalf of the Council of Standards New Zealand on 10 February 2015.
This Standard was published on 23 March 2015.

The following are represented on Committee EL-004:

Australian Chamber of Commerce and Industry
Australian Industry Group
Consumer Electronics Suppliers Association
Consumers Federation of Australia
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Engineers Australia
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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 61008.1:2014.

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Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs)

Part 1: General rules (IEC 61008-1, Ed. 3.2 (2013) MOD)

Originally as AS/NZS 3175.1:1994.
Previous edition AS/NZS 61008.1:2011.
Third edition 2015.

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140.

ISBN 978 1 74342 996 9

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-004, Electrical Accessories, to supersede AS/NZS 61008.1:2011, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs)—General rules*.

The objective of this Standard is to provide Australian and New Zealand electrical industries with requirements for residual current operated circuit-breakers with integral overcurrent protection functionally independent of, or functionally dependent on, line voltage for household and similar uses.

This Standard is an adoption with national modifications and has been reproduced from IEC 61008-1, Ed. 3.2 (2013), *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses* (*RCCBs*)—Part 1: *General rules*, which incorporates Amendment 1 (2012) and Amendment 2 (2013) and has been varied as indicated to take account of Australian/New Zealand conditions. The variations are specified in Appendix ZZ.

This Standard will exist in parallel with AS/NZS 3190, *Approval and test specification—Residual current devices (current-operated earth-leakage devices)*, and any revisions thereof. Both this Standard and AS/NZS 3190 are acceptable for RCCBs. PRCDs are acceptable only if they comply with AS/NZS 3190.

The essential safety requirements in AS/NZS 3820, *Essential safety requirements for electrical equipment* that could be applicable to RCCBs are covered by this Standard.

The variations described in Appendix ZZ form the Australian and New Zealand variations for the purposes of the CB scheme for recognition of testing to standards for safety of electrical equipment (the CB Scheme).

This Standard is structured as follows:

(a) Preface.

(b) IEC 61008-1 Ed. 3.2 (2013) (unedited from the contents page to the final clause of the source document).

(c) Appendix ZZ—(Australian/New Zealand) variations to the source document.

The variations listed in Appendix ZZ address issues including the following:

(i) Verification of the correct operation in case of sudden appearance of residual currents at specified currents between $5I_{\Delta n}$ and 500 A.

(ii) Type 1 RCCB additional requirements.

(iii) Add verification of the test device circuit.

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

(A) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

(B) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
IEC		AS	
60038	IEC standard voltages	60038	Standard voltages
60060	High-voltage test techniques	1931	High-voltage test techniques
60060-1	Part 1: General definitions and test requirements	1931.1	Part 1: General definitions and test requirements
60060-2	Part 2: Measuring systems	1931.2	Part 2: Measuring systems
60068	Environmental testing	60068	Environmental testing
60068-3-4	Part 3-4: Supporting documentation and guidance—Damp heat tests	60068.3.4	Part 3.4: Supporting documentation and guidance—Damp heat tests
60417	Graphical symbols for use on equipment	60417	Graphical symbols for use on equipment
60417-1	Part 1: Overview and application	60417.1	Part 1: Overview and application
60529	Degrees of protection provided by enclosures (IP Code)	60529	Degrees of protection provided by enclosures (IP Code)
		AS/NZS	
60695	Fire hazard testing	60695	Fire hazard testing
60695-2-10	Part 2-10: Glowing/hot-wire based test methods—Glow-wire apparatus and common test procedure	60695.2.10	Part 2.10: Glowing/hot-wire based test methods—Glow-wire apparatus and common test procedure
60884	Plugs and socket-outlets for household and similar purposes	60884	Plugs and socket-outlets for household and similar purposes
60884-1	Part 1: General requirements	60884.1	Part 1: General requirements (IEC 60884-1, Ed.3.1 (2006) MOD)
61009	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)	61009	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)
61009-1	Part 1: General rules	61009.1	Part 1. General rules (IEC 61009-1, Ed.3.0 (2010) MOD)
CISPR		AS/NZS CISPR	
14	Electromagnetic compatibility—Requirements for household appliances, electric tools and similar apparatus	14	Electromagnetic compatibility—Requirements for household appliances, electric tools and similar apparatus
14-1	Part 1: Emission	14.1	Part 1: Emission

Only normative references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

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

CONTENTS

INTRODUCTION

This part includes definitions, requirements and tests, covering all types of RCCBs. For the applicability to a specific type this part applies in conjunction with the relevant part, as follows:

Part 2-1: Applicability of the general rules to RCCBs functionally independent of line voltage.

Part 2-2: Applicability of the general rules to RCCBs functionally dependent on line voltage.

AUSTRALIAN/NEW ZEALAND STANDARD

Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs)

Part 1:
General rules (IEC 61008-1, Ed. 3.2 (2013) MOD)

1 Scope

This International Standard applies to residual current operated circuit-breakers functionally independent of, or functionally dependent on, line voltage, for household and similar uses, not incorporating overcurrent protection (hereafter referred to as RCCBs), for rated voltages not exceeding 440 V a.c. with rated frequencies of 50 Hz, 60 Hz or 50/60 Hz and rated currents not exceeding 125 A, intended principally for protection against shock hazard.

These devices are intended to protect persons against indirect contact, the exposed conductive parts of the installation being connected to an appropriate earth electrode. 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.

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

This standard applies to devices performing simultaneously the functions 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.

NOTE 1 The requirements for RCCBs are in line with the general requirements of IEC 60755. RCCBs are essentially intended to be operated by uninstructed persons and designed not to require maintenance. They may be submitted for certification purposes.

NOTE 2 Installation and application rules of RCCBs are given in the IEC 60364 series.

They are intended for use in an environment with pollution degree 2.

They are suitable for isolation.

RCCBs complying with this standard, with the exception of those with an uninterrupted neutral, are suitable for use in IT systems.

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 60364-4-44).

RCCBs 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.

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

NOTE 3 Surge arresters installed downstream of the general type of RCCBs and connected in common mode may cause unwanted tripping.

NOTE 4 For RCCBs having a degree of protection higher than IP20 special constructions may be required.