AS 3947.4.1—1995
IEC 947-4-1:1990

Australian Standard®

Low-voltage switchgear and controlgear

Part 4.1: Contactors and motor-starters—Electromechanical contactors and motor-starters

[IEC title: Low-voltage switchgear and controlgear
Part 4: Contactors and motor-starters
Section one—Electromechanical contactors and motor-starters]

This Australian Standard was prepared by Committee EL/6, Industrial Switchgear and Controlgear. It was approved on behalf of the Council of Standards Australia on 6 September 1994 and published on 5 January 1995.

The following interests are represented on Committee EL/6:

Australian-British Chamber of Commerce

Australian Electrical and Electronic Manufacturers Association

Bureau of Steel Manufacturers of Australia

Electrical Contractors Association of Australia

Electricity Supply Association of Australia

Independent Electrical Switchboard Manufacturers Association (Australia)

Institution of Engineers, Australia

Ministry of Commerce, NZ

Railways of Australia Committee

Water Board, Sydney—Illawarra—Blue Mountains

WorkCover Authority of New South Wales

Review of Australian Standards. *To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.*

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Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 94015.

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For history before 1994, see Preface.
AS 1023.2—1989, AS 1029.1—1985, AS 1202.1—1981, AS 1202.2—1976, AS 1202.3—1976 and AS 1202.4—1976 revised, amalgamated and redesignated AS 3947.4.1—1995.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/6 on Industrial Switchgear and Controlgear as an Australian Standard to supersede AS 1023.2—1989, *Low voltage switchgear and controlgear—Protection of electric motors*, Part 2: *Current sensing protection devices for a.c. motors*; AS 1029.1—1985, *Low voltage contactors*, Part 1: *Electromechanical (Up to and including 1000 V a.c. and 1200 V d.c.)*; and AS 1202.1—1981, *AC motor starters (Up to and including 1000 V)*, Part 1: *Direct-on-line (full voltage) starters*; AS 1202.2—1976, *Star-delta starter*; AS 1202.3—1976, *Autotransformer starters*; and AS 1202.4—1976, *Rheostatic rotor starters*.

This Standard is the result of a consensus among Australian and New Zealand representatives on the Joint Committee to produce it as an Australian Standard.

AS 1023.2, AS 1029.1, AS 1202.1, AS 1202.2, AS 1202.3 and AS 1202.4 will be withdrawn after an appropriate time, nominally five years, to allow manufacturers to adapt their range of contactors and motor starters to comply with this Standard.

This Standard is Part 4 of the following series:

AS
3947 Low voltage switchgear and controlgear

Part 1: General rules
Part 2: Circuit breakers*
Part 3: Switches, disconnectors, switch-diconnectors and fuse-combination units
Part 4: Contactors and motor-starters
Part 5: Control circuit devices and switching elements*
Part 6: Multiple function equipment*
Part 7: Ancillary equipment*

AS 3947.4.1 was first published in 1961 in part as AS C165. AS C63 was first published in 1965, AS 364 in 1967 and AS C381 in 1961. A revision and redesignation of AS C63 in 1971 resulted in the publication of AS 1029. In 1972, AS C165 was revised and redesignated AS 1023.2 and AS C364 became AS 1202.1 with a second edition published in 1971. The second edition of AS 1029 was published in 1974. AS C381 of 1967 was revised and published in three parts as AS 1202.2—1976, AS 1202.3—1976 and AS 1202.4—1976. AS 1029—1974 was revised and redesignated in 1982 as AS 1029.1 with a further edition published in 1985. A new edition of AS 1023.2 was published in 1989.

AS 1023.2, AS 1029.1, AS 1202.1, AS 1202.2, AS 1202.3 and AS 1202.4 have now been revised and amalgamated into a new Standard AS 3947.4.1—1994.

The objective of this Standard, in addition to that stated in Clause 1.2, is to bring the superseded Standards more into agreement with IEC 947-4-1 and to consolidate and renumber them as part of a series of Standards for low voltage switchgear and controlgear.

With the exception of Appendix AA, this Standard has been based on and includes the full text of IEC 947-4-1 (1990), *Low-voltage switchgear and controlgear*, Part 4: *Contactors and motor-starters*, Section One — *Electromechanical contactors and motor-starters*, and the Corrigendum.

Appendix AA lists the variations between this Standard and IEC 947-4-1. For the purposes of this Standard, the IEC text is amended, supplemented or replaced as set out in Appendix AA. These changes are indicated by a rule in the margin against each clause, table, figure or part thereof affected.

The corrections required by the Corrigendum are indicated in the text by a double marginal bar against the clause, table, figure or part thereof affected.

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* In course of preparation.

It should be noted that the requirements and associated tests for electromagnetic compatibility (EMC) are under consideration as an amendment to AS 3947.1. This Standard may also be amended for other requirements and associated tests applying, in particular, to the products specified.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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

(a) The AS number and the international number are shown only on the cover and title page.

(b) In the source text, ‘this International Standard’ should read ‘this Australian Standard’.

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

The references to International Standards should be replaced by references to the following Australian Standards:

Reference to International Standard		*Australian Standard*	
IEC		AS	
34	Rotating electrical machines	1359	Rotating electrical machines — General requirements
34-1	Part 1: Rating and performance		
34-11	Part 11: Built-in thermal protection	1023	Low voltage switchgear and controlgear — Protection of electric motors
	Chapter 1: Rules for protection of rotating electrical machines	1023.1	Part 1: Built-in thermal detectors and associated control units
50	International Electrotechnical Vocabulary (IEV)	1852	International Electrotechnical Vocabulary
50 (441)	Chapter 441: Switchgear, controlgear and fuses	1852.441	Part 441: Switchgear, controlgear and fuses
76	Power transformers	2374	Power transformers
76-1	Part 1: General	2374.1	Part 1: General requirements
85	Thermal evaluation and classification of electrical insulation	—	
112	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	—	
255	Electrical relays	2481	All-or-nothing electrical relays (instantaneous and timing relays)
255-1-00	All-or-nothing electrical relays		
255-8	Electrical relays	—	
255-8	Part 8: Thermal electrical relays		
269	Low-voltage fuses	2005	Low voltage fuses — Fuses with enclosed fuse-links
269-1	Part 1: General requirements	2005.10	Part 10: General requirements
269-2	Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application)	2005.20	Part 20: Supplementary requirements for fuses for use by authorized persons (Fuses mainly for industrial application)—Common requirements