

AS 60947.4.1—2004
IEC 60947-4-1 Ed.2.1(2002)

AS 60947.4.1—2004

Australian Standard™

Low-voltage switchgear and controlgear

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

This Australian Standard was prepared by Committee EL-006, Industrial Switchgear and Controlgear. It was approved on behalf of the Council of Standards Australia on 22 July 2004.

This Standard was published on 23 September 2004.

The following are represented on Committee EL-006:

Australasian Railway Association
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Bureau of Steel Manufacturers of Australia
Electricity Supply Association of Australia
Engineers Australia
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Part 4.1: Contactors and motor-starters—Electromechanical contactors and motor-starters

Originated in part as AS C165—1961.
Previous edition AS/NZS 3947.4.1:2001.
Revised and redesignated as AS 60947.4.1—2004.

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Published by Standards Australia International Ltd GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 6258 1

PREFACE

This Standard was prepared by the Standards Australia Committee EL-006, Industrial Switchgear and Controlgear to supersede AS/NZS 3947.4.1:2001.

The objective of this Standard, in addition to that stated in Clause 1, is to bring Australian requirements into line with consolidated Edition 2.1 (2002-2) of IEC 60947-4-1.

This Standard is Part 4.1 of a series which, when complete, will consist of the following:

AS 60947	Low-voltage switchgear and controlgear
AS 60947.1*	Part 1: General rules
AS 60947.2*	Part 2: Circuit-breakers
AS 60947.3	Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units
AS 60947.3 Suppl	Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units, Supplement 1: Fuse-switch-disconnectors and switch-disconnectors for use with low-voltage aerial bundled cables
AS 60947.4.1*	Part 4.1: Contactors and motor-starters—Electromechanical contactors and motor-starters (this Standard)
AS 60947.4.2*	Part 4.2: Contactors and motor-starters—A.C. semiconductor motor controllers and starters
AS 60947.4.3	Part 4.3: Contactors and motor-starters—A.C. semiconductor controllers and contactors for non-motor loads
AS 60947.5.1*	Part 5.1: Control circuit devices and switching elements—Electromechanical control circuit devices
AS 60947.5.2*	Part 5.2: Control circuit devices and switching elements—Proximity switches
AS 60947.5.3	Part 5.3: Control circuit devices and switching elements—Requirements for proximity devices with defined behaviour under fault conditions
AS 60947.5.4*	Part 5.4: Control circuit devices and switching elements—Methods of assessing the performance of low-energy contacts—Special tests
AS 60947.5.5	Part 5.5: Control circuit devices and switching elements—Electrical emergency stop devices with mechanical latching function
AS 60947.5.6	Part 5.6: Control circuit devices and switching elements—D.C. interface for proximity sensors and switching amplifiers (NAMUR)
AS 60947.5.7*	Part 5.7: Control circuit devices and switching elements—Requirements for proximity devices with analogue output
AS 60947.6.1	Part 6.1: Multiple function equipment—Automatic transfer switching equipment
AS 60947.6.2*	Part 6.2: Multiple function equipment—Control and protective switching devices (or equipment) (CPS)
AS 60947.7.1*	Part 7.1: Ancillary equipment—Terminal blocks for copper conductors
AS 60947.7.2*	Part 7.2: Ancillary equipment—Protective conductor terminal blocks for copper conductors

AS 60947.7.3*	Part 7.3:	Ancillary equipment—Safety requirements for terminal blocks for the reception of cartridge fuse-links
AS 60947.8*	Part 8:	Control units for built-in thermal protection for rotating machines

It is the intention of the Committee to align the numbering of this series of Standards with that of the corresponding IEC 60947 series of Standards.

Standards from the list above that are marked with an asterisk (*) are, at the time of publication of this document, available as a part of the AS 60947 series of Standards.

Standards that are not so marked remain as AS/(NZS) 3947 series Standards. Following the next amendment or revision of the corresponding IEC Standard, each of these Standards remaining in the AS/(NZS) 3947 series will be revised and renumbered as a part of the AS 60947 series.

This Standard is identical in technical content with and has been reproduced from IEC 60947-4-1 Ed.2.1(2002), *Low-voltage switchgear and controlgear—Part 4.1: Contactors and motor-starters—Electromechanical contactors and motor-starters*, which includes IEC 60947-4-1: Edition 2.0 (2000), its Corrigendum (2001-07) and its Amendment 1 (2002).

The provisions of the general rules dealt with in AS 60947.1 (hereinafter referred to as Part 1) are applicable to this Standard, where specifically called for. Clauses and subclauses, tables, figures and appendices of the general rules thus applicable are identified by reference to Part 1, for example, 1.2.3 of Part 1, table 4 of Part 1, or annex A of Part 1. Where reference is made to other parts of the AS 60947 (AS/NZS 3947) series, they too are referred to as their relevant parts after the initial reference. For instance, AS 60947.2 is referred to as Part 2 and AS/NZS 3947.3 is referred to as Part 3.

This Standard differs from AS/NZS 3947.4.1:2001 in the following areas:

- (a) Contactors or starters with an electronically controlled electromagnet are now covered.
- (b) Rated impulse withstand voltage now must be stated by the manufacturer.
- (c) Guidance for creepage and clearance distances is now derived from AS 60947.1 and Annex C has been deleted.
- (d) Additional safety requirements for equipment with isolating function have been augmented.
- (e) Limits of operation of contactors and power-operated starters have been revised.
- (f) Type tests for dielectric properties have been revised.
- (g) Requirements for the behaviour of the contactor or the starter during, and its condition after, the conventional operational performance tests have been tightened.
- (h) Informative tests have been tightened; and Annex E giving examples of circuit configurations and normative Annex F giving requirements for mirror contacts have been added.

A reference to an International Standard identified in the Normative References Clause by strikethrough (~~example~~) is replaced by a reference to the Australian or Australian/New Zealand Standard(s) listed immediately thereafter and identified by shading (**example**). Where the struck-through referenced document and the referenced Australian or Australian/New Zealand Standard are identical, this is indicated in parenthesis after the title of the latter.

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

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