AS/NZS 3947.4.1:2001
IEC 60947-4-1:2000

Australian/New Zealand Standard™

Low-voltage switchgear and controlgear

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

Standards Australia

STANDARDS NEW ZEALAND

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-006, Industrial Switchgear and Controlgear. It was approved on behalf of the Council of Standards Australia on 18 June 2001 and on behalf of the Council of Standards New Zealand on 1 August 2001. It was published on 12 October 2001.

The following interests 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
Electrical Contractors Association of New Zealand
Electricity Supply Association of Australia
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-006, Industrial Switchgear and Controlgear to supersede AS 3947.4.1—1995.

The objective of this Standard, in addition to that stated in Clause 1, is to bring Australian and New Zealand requirements into line with IEC 60947-4-1:2000.

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

AS(/NZS) 3947	Low-voltage switchgear and controlgear	
AS/NZS 3947.1	Part 1:	General rules
AS 3947.2	Part 2:	Circuit-breakers
AS/NZS 3947.3	Part 3:	Switches, disconnectors, switch-disconnectors and fuse-combination units
AS/NZS 3947.3 Supp1	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/NZS 3947.4.1	Part 4.1:	Contactors and motor-starters—Electromechanical contactors and motor-starters (this Standard)
AS/NZS 3947.4.2	Part 4.2:	Contactors and motor-starters—A.C. semiconductor motor controllers and starters
AS/NZS 3947.4.3	Part 4.3:	Contactors and motor-starters—A.C. semiconductor controllers and contactors for non-motor loads
AS/NZS 3947.5.1	Part 5.1:	Control circuit devices and switching elements—Electromechanical control circuit devices
AS/NZS 3947.5.2	Part 5.2:	Control circuit devices and switching elements—Proximity switches
AS/NZS 3947.5.3	Part 5.3:	Control circuit devices and switching elements—Requirements for proximity devices with defined behaviour under fault conditions
AS/NZS 3947.5.4	Part 5.4:	Control circuit devices and switching elements—Methods of assessing the performance of low-energy contacts–Special tests
AS/NZS 3947.5.5	Part 5.5:	Control circuit devices and switching elements–Electrical emergency stop devices with mechanical latching function
AS/NZS 3947.5.6	Part 5.6:	Control circuit devices and switching elements—D.C. interface for proximity sensors and switching amplifiers (NAMUR)
AS/NZS 3947.6.1	Part 6.1:	Multiple function equipment—Automatic transfer switching equipment
AS/NZS 3947.6.2	Part 6.2:	Multiple function equipment—Control and protective switching devices (or equipment) (CPS)
AS/NZS 3947.7.1	Part 7.1:	Ancillary equipment—Terminal blocks for copper conductors
AS 3947.7.2	Part 7.2:	Ancillary equipment—Protective conductor terminal blocks for copper conductors
AS/NZS 3947.7.3	Part 7.3:	Ancillary equipment—Safety requirements for terminal blocks for the reception of cartridge fuse-links

This Standard is identical in technical content with and has been reproduced from IEC 60947-4-1:2000, *Low-voltage switchgear and controlgear*—Part 4.1: *Contactors and motor-starters—Electromechanical contactors and motor-starters*.

The provisions of AS/NZS 3947.1, *General rules* are applicable to this Standard where specifically called for. Clauses and Subclauses thus applicable, as well as tables, figures, and annexes are identified by reference to IEC 60947-1, for example Subclause 1.2.3 of IEC 60947-1, table 4 of IEC 60947-1 or annex A of IEC 60947-1. IEC 60947-1 is also referred to as Part 1.

This Standard differs from AS 3947.4.1—1995 in the following areas:

(a) All Australian variations have been removed.

(b) Requirements and tests for electromagnetic compatibility have been added.

(c) Special tests in Appendix B for discrimination between overload relays and SCPDs have been redefined as ‘Co-ordination at the crossover current between the starter and associated SCPD’ and an indirect method of verification has 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:

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

(b) In the source text ‘this standard’ should read ‘this Australian/New Zealand Standard’.

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

The terms ‘normative’ and ‘informative’ have been used in this Standard 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.

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Any IEC table, figure or passage of text that is struck-through is not part of this Standard. Any Australian/New Zealand table, figure or passage of text that is added (and identified by shading) is part of this Standard.

1 Scope and object

This part of IEC 60947 applies to the types of equipment listed in 1.1 and 1.2 whose main contacts are intended to be connected to circuits the rated voltage of which does not exceed 1 000 V a.c. or 1 500 V d.c.

Starters and/or contactors dealt with in this standard are not normally designed to interrupt short-circuit currents. Therefore, suitable short-circuit protection (see 9.3.4) shall form part of the installation but not necessarily of the contactor or the starter.

In this context, this standard gives requirements for:

– contactors associated with overload and/or short-circuit protective devices;

– starters associated with separate short-circuit protective devices and/or with separate short-circuit and integrated overload protective devices;

– contactors or starters combined, under specified conditions, with their own short-circuit protective devices. Such combinations, e.g. combination starters (see 3.2.7) or protected starters (see 3.2.8) are rated as units.

Circuit-breakers and fuse-combination units used as short-circuit protective devices in combination starters and in protected starters shall comply with the requirements of IEC 60947-2 and IEC 60947-3, as the case may be.

Equipment covered by this standard is as follows.

1.1 AC and d.c. contactors

AC and d.c. contactors intended for closing and opening electric circuits and, if combined with suitable relays (see 1.2), for protecting these circuits against operating overloads which may occur therein.

NOTE Contactors combined with suitable relays and which are intended to provide short-circuit protection shall additionally satisfy the relevant conditions specified for circuit-breakers (IEC 60947-2).

This standard applies also to the actuators of contactor relays and to the contacts dedicated exclusively to the coil circuit of a contactor.