AS/NZS IEC 60947.4.2:2015
IEC 60947-4-2, Ed. 3.0 (2011)
IEC 60947-4-2, Ed. 3.0 Cor.1

AS/NZS IEC 60947.4.2:2015

Australian/New Zealand Standard™

Low-voltage switchgear and controlgear

Part 4.2: Contactors and motor-starters—AC semiconductor motor controllers and starters

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

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 27 May 2015 and on behalf of the Council of Standards New Zealand on 29 May 2015.
This Standard was published on 29 June 2015.

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This Standard was issued in draft form for comment as DR AS/NZS IEC 60947.4.2:2015.

Australian/New Zealand Standard™

Low-voltage switchgear and controlgear

Part 4.2: Contactors and motor-starters—AC semiconductor motor controllers and starters

Originally as AS 1202.5–1985.
Revised and redesignated as AS/NZS IEC 60947.4.2:2015.

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 76035 074 1

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-006, Industrial Switchgear and Controlgear, to supersede AS 60947.4.2—2004.

The objective of this Standard is to state—

(a) the characteristics of a.c. semiconductor motor controllers and starters and associated equipment;

(b) the conditions with which a.c. semiconductor motor controllers and starters comply with reference to—

  (i) their operation and behaviour;

  (ii) their dielectric properties;

  (iii) the degrees of protection provided by their enclosures, where applicable;

  (iv) their construction;

(c) the tests intended for confirming that these conditions have been met, and the methods to be adopted for these tests; and

(d) the information to be given with the equipment, or in the manufacturer's literature.

NOTE: For the purposes of this Standard, the term 'controller' may be used instead of 'a.c. semiconductor motor controller'.

This Standard is identical with, and has been reproduced from, IEC 60947-4-2, Ed. 3.0 (2011), *Low-voltage switchgear and controlgear*, Part 4.2: *Contactors and motor-starters—AC semiconductor motor controllers and starters* and its Corrigendum 1 (2012), which has been added at the end of the source text. This standard shall be read in conjunction with IEC 60947-1:2007, *Low-voltage switchgear and controlgear*—Part 1: *General rules*.

As this Standard is reproduced from an International Standard, 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*	
CISPR 11	Industrial, scientific and medical equipment—Radio-frequency disturbance characteristics—Limits and methods of measurement Amendment 1 (2010)	AS/NZS CISPR 11	Industrial, scientific and medical equipment—Radio-frequency disturbance characteristics—Limits and methods of measurement

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

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annexes 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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INTRODUCTION

This standard covers low-voltage a.c. semiconductor motor controllers and starters that have many capabilities and features beyond the simple starting and stopping of an induction motor, such as controlled starting and stopping, manoeuvring and controlled running.

The generic term “controller” is used in this standard wherever the unique features of the power semiconductor switching elements are the most significant points of interest. The generic term “starter” is used wherever the consequences of operating the power semiconductor switching elements, together with suitable overload protective means, are the most significant points of interest. Specific designations (for example form 1, form HxB, etc.) are used wherever the unique features of various configurations comprise significant points of interest.

NOTES

AUSTRALIAN/NEW ZEALAND STANDARD

Low-voltage switchgear and controlgear

Part 4.2: Contactors and motor-starters—AC semiconductor motor controllers and starters

1 Scope

This standard applies to a.c. semiconductor motor controllers and starters, which may include a series mechanical switching device, intended to be connected to circuits, the rated voltage of which does not exceed 1 000 V a.c.

This standard characterizes a.c. semiconductor motor controllers and starters with and without bypass means.

AC semiconductor motor controllers and starters dealt with in this standard are not normally designed to interrupt short-circuit currents. Therefore, suitable short-circuit protection (see 8.2.5) should form part of the installation, but not necessarily of the a.c. semiconductor motor controller or starter.

In this context, this standard gives requirements for a.c. semiconductor motor controllers and starters associated with separate short-circuit protective devices.

This standard does not apply to

– continuous operation of a.c. motors at motor speeds other than the normal speed;
– semiconductor equipment, including semiconductor contactors (see 2.2.13 of IEC 60947-1:2007) controlling non-motor loads;
– electronic a.c. power controllers covered by IEC 60146 series.

Contactors, overload relays and control circuit devices used in a.c. semiconductor motor controllers and starters should comply with the requirements of their relevant product standard. Where mechanical switching devices are used, they should meet the requirements of their own IEC product standard, and the additional requirements of this standard.

The object of this standard is to state as follows:

– the characteristics of a.c. semiconductor motor controllers and starters and associated equipment;
– the conditions with which a.c. semiconductor motor controllers and starters comply with reference to
  a) their operation and behaviour;
  b) their dielectric properties;
  c) the degrees of protection provided by their enclosures where applicable;
  d) their construction;
– the tests intended for confirming that these conditions have been met, and the methods to be adopted for these tests;
– the information to be given with the equipment, or in the manufacturer's literature.

NOTE For the purpose of this standard, the term "controller" may be used instead of "a.c. semiconductor motor controller".