

AS 60947.4.2—2004
IEC 60947-4-2 Ed.2.1(2002)

AS 60947.4.2—2004

Australian Standard™

Low-voltage switchgear and controlgear

**Part 4.2: Contactors and motor-
starters—A.C. semiconductor motor
controllers and 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
National Electrical and Communications Association
National Electrical Switchboard Manufacturers Association
Testing Interests (Australia)

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Web Shop at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards™ and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

AS 60947.4.2—2004

Australian Standard™

Low-voltage switchgear and controlgear

Part 4.2: Contactors and motor-starters—A.C. semiconductor motor controllers and starters

Originated as AS 1202.5—1985.
Previous edition AS/NZS 3947.4.2:2000.
Revised and redesignated as AS 60947.4.2—2004.

COPYRIGHT

© Standards Australia International

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

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

ISBN 0 7337 6259 X

PREFACE

This Standard was prepared by the Standards Australia Committee EL-006, Industrial Switchgear and Controlgear to supersede AS 3947.4.2—1997.

The objective of this Standard is to provide characteristics, constructional and performance requirements and tests to verify performance for a.c. semiconductor motor controllers and starters for rated voltage up to 1000 V a.c.

This Standard is Part 4.2 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 |
| AS 60947.4.2* | Part 4.2: Contactors and motor-starters—A.C. semiconductor motor controllers and starters (this Standard) |
| 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 with and has been reproduced from Consolidated Edition 2.1(2002) of IEC 60947-4-2, *Low-voltage switchgear and controlgear*, Part 4-2: *Contactors and motor-starters—AC semiconductor motor controllers and starters* which includes Edition 2.0 (1999) of IEC 60947-4-2, its Amendment 1 (2001) and its Corrigendum (2002-03).

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 semi-conductor switching elements, together with suitable overload protective means are the most significant points of interest. Specific designations (for example form 1, form HxB) are used wherever the unique features of various configurations comprise significant points of interest.

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.

This Standard differs from AS/NZS 3947.4.2:2000 in the following:

- (a) Includes requirements and tests for bypassed controllers.
- (b) Utilization categories have been revised.
- (c) Temperature rise requirements and tests have been expanded.
- (d) Ratio of power frequency recovery voltage to rated operational voltage for overload capability tests is now 1.05.
- (e) Requirements for making and breaking capacities for devices in the main circuit have been expanded.
- (f) Tests for performance under short-circuit conditions have been revised
- (g) Normative Annex I giving a modified test circuit for short-circuit testing and informative Annex J giving a flowchart for constructing bypassed semiconductor controllers tests have been added.

A reference to an International Standard identified in the Normative References Clause and the Bibliography 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.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-