

Australian Standard™

**Low-voltage switchgear and controlgear**

**Part 7.2: Ancillary equipment—  
Protective conductor terminal blocks for  
copper conductors**

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.  
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The following are represented on Committee EL-006:

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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 7.2: Ancillary equipment—  
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Originated as AS 3947.7.2—1996.  
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## PREFACE

This Standard was prepared by the Standards Australia Committee EL-006, Industrial Switchgear and Controlgear to supersede AS 3947.7.2:1996.

The objective of this Standard, in addition to that stated in Clause 1, is to bring Australian requirements into line with Edition 2.0 (2002-07) of IEC 60947-7-2.

This Standard is Part 7.2 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
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 (this Standard)

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, Edition 2.0 (2002-07) of IEC 60947-7-2: 2002, *Low-voltage switchgear and controlgear – Part 7-2: Ancillary equipment—Protective conductor terminal blocks for copper conductors*.

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 3947.7.2:1996 in the following areas:

- (a) The term ‘clamping unit’ is used instead of ‘terminal’.
- (b) The Scope has been revised to remove non-applicable connecting devices and terminal blocks and its guidance role has been expanded.
- (c) Clearances and creepage distances are not applicable.
- (d) Requirements and tests for EMC have been added.
- (e) A test of the mechanism/strength of clamping units has been added.
- (f) Dielectric test requirements have been revised.
- (g) Voltage drop test requirements have been revised.
- (h) Retightening of the screws of clamping units during the temperature-rise test is not permitted.
- (i) Verification of thermal characteristics has been added.
- (j) Annex B has been added.

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

- (i) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (ii) In the source text ‘this standard’ should read ‘this Australian Standard’.
- (iii) 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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## STANDARDS AUSTRALIA

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**Australian Standard**
**Low-voltage switchgear and controlgear**  
**Part 7.2: Ancillary equipment—Protective conductor terminal blocks for copper conductors**


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**1 General****1.1 Scope**

This part of ~~IEC 60947-7-1~~ **AS 60947** specifies requirements for protective conductor terminal blocks with PE function up to 120 mm<sup>2</sup> (250 kcmil) and for protective conductor terminal blocks with PEN function equal to and above 10 mm<sup>2</sup> (AWG 8) with screw-type or screwless-type clamping units, primarily intended for industrial applications.

NOTE AWG is the abbreviation of "American Wire Gage" [Gage (US) = Gauge (UK)]

kcmil = 1000 cmil

1 cmil = 1 circular mil = surface of a circle having a diameter of 1 mil

1 mil = 1/1000 inch

Protective conductor terminal blocks are used to form the electrical and mechanical connection between copper conductors and the fixing support.

It is applicable to protective conductor terminal blocks for the connection of round copper conductors with or without special preparation having a cross-section between 0,2 mm<sup>2</sup> and 120 mm<sup>2</sup> (AWG 24 and 250 kcmil), intended to be used in circuits of a rated voltage not exceeding 1 000 V a.c. up to 1 000 Hz or 1 500 V d.c., most commonly in conjunction with terminal blocks according to ~~IEC 60947-7-1~~ **AS 60947.7.1**. Referred to here as Part 7.1.

This standard may be used as guide for

- protective conductor terminal blocks requiring the fixing of special devices to the conductors, for example quick connect terminations or wrapped connections, etc.;
- protective conductor terminal blocks providing direct contact to the conductors by means of edges or points penetrating the insulation, for example insulation displacement connections, etc.

Where applicable in this standard, the term "clamping unit" has been used instead of the term "terminal". This is taken into account in case of reference to Part 1.

**1.2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

References to international standards that are struck through in this clause are replaced by references to Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is identified as such.

~~IEC 60439-1:1999, Low-voltage switchgear and controlgear assemblies — Part 1: Type-tested and partially type-tested assemblies~~

**AS/NZS 3439.1, Low-voltage switchgear and controlgear assemblies, Part 1: Type-tested and partially type-tested assemblies**