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Australian/New Zealand Standard™

Low-voltage switchgear and controlgear

Part 7.3: Ancillary equipment—Safety requirements for fuse terminal blocks

STANDARDS Australia

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Australian/New Zealand Standard™

Low-voltage switchgear and controlgear

Part 7.3: Ancillary equipment—Safety requirements for fuse terminal blocks

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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 60947.7.3—2004.

The objective of this Standard is to specify safety requirements and test methods for the mechanical, electrical and thermal characteristics of fuse terminal blocks, to ensure the compatibility between terminal blocks and standardized fuse-links.

This Standard is identical with, and has been reproduced from, IEC 60947-7-3, Ed. 2.0 (2009), *Low-voltage switchgear and controlgear*, Part 7.3: *Ancillary equipment—Safety requirements for fuse terminal blocks*.

This Standard shall be read in conjunction with IEC 60947-1 and IEC 60947-7-1. The provisions of the general rules dealt with in IEC 60947-1 and the requirements for terminal blocks of IEC 60947-7-1 are applicable to this Standard, where specifically called for. Clauses and subclauses, tables, figures and annexes thus applicable are identified by reference to IEC 60947-1 or IEC 60947-7-1, e.g. 1.2 of IEC 60947-1, Table 4 of IEC 60947-7-1 or Annex A of IEC 60947-1.

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

(a) In the source text 'this part of IEC 60947' should read 'this Australian/New Zealand Standard'.

(b) 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*	
IEC		AS/NZS	
60695	Fire hazard testing	60695	Fire hazard testing
60695-11-5	Part 11-5: Test flames—Needle flame test method—Apparatus, confirmatory test arrangement and guidance	60695.11.5	Part 11.5: Test flames—Needle flame test method—Apparatus, confirmatory test arrangement and guidance
		AS/NZS IEC	
60947	Low-voltage switchgear and controlgear	60947	Low-voltage switchgear and controlgear
60947-7-1	Ancillary equipment—Terminal blocks for copper conductors	60947.7.1	Ancillary equipment—Terminal blocks for copper conductors

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

The standard for fuse terminal blocks covers not only the terminal block requirements but also takes into account the specifications of the cartridge fuse-links according to IEC 60127-1 and IEC 60127-2. A connection between these two standards is made by adding (adapting) the fundamental specifications of cartridge fuse-links (rated current, rated voltage, maximum voltage drop and maximum sustained power dissipation for cartridge fuse-links with the dimension of 5 mm × 20 mm or 6,3 mm × 32 mm with their different response characteristics) to the IEC 60947-7-1 requirements for terminal blocks. By this means, it is possible to judge the quality of the product “fuse terminal blocks”.

An important fact when using such cartridge fuse-links with fuse terminal blocks is that they heat up much less under rated load than they would do under overload conditions. The rated load is the result of rated current and maximum voltage drop. But there is a considerably increased power dissipation under overload conditions, equalling the maximum sustained power dissipation loss according to IEC 60127-2.

In industrial applications, single fuse terminal blocks are used within an arrangement of terminal blocks or many of them forming an arrangement on their own. This means that the same current and fuse-link will result in different heat emissions. Furthermore, it should be taken into account that apart from the general full range fuse (for overload and short-circuit protection), some fuse terminal blocks are exclusively used for short-circuit protection according to IEC 60364-4-43, e.g. in control circuits, where no overloads occur (i.e. safety coils, indicator lights or similar equipment).

Consequently there are four different types of application that need to be described in the catalogue or indicated on the fuse terminal block. For more information, see Annex B.

NOTES

AUSTRALIAN/NEW ZEALAND STANDARD

Low-voltage switchgear and controlgear

Part 7.3:
Ancillary equipment—Safety requirements for fuse terminal blocks

1 General

1.1 Scope

This part of IEC 60947 applies to fuse terminal blocks with screw-type or screwless-type clamping units for the connection of rigid (solid or stranded) or flexible copper conductors for the reception of cartridge fuse-links in accordance with IEC 60127-2, intended primarily for industrial or similar use in circuits not exceeding 1 000 V a.c., up to 1 000 Hz or 1 500 V d.c., and having a maximum short-circuit breaking capacity of 1 500 A.

They are intended for installation in electrical equipment with enclosures which surround the fuse terminal blocks to such an extent that they are accessible only with the aid of a tool.

For certain applications, for example in control circuits, the fuse terminal blocks may be designed exclusively for short-circuit protection.

NOTE This standard may be used as a guide for fuse terminal blocks for the reception of special cartridge fuse-links which do not meet the requirements of IEC 60127-2.

The object of this standard is to specify safety requirements and test methods for the mechanical, electrical and thermal characteristics of fuse terminal blocks, to ensure the compatibility between terminal blocks and standardized fuse-links.

This standard may be used as a guide for

– fuse terminal blocks requiring the fixing of special devices to the conductors, for example quick connect terminations or wrapped connections, etc.;

– fuse 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 IEC 60947-1.

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.

IEC 60127-1:2006, *Miniature fuses – Part 1: Definitions for miniature fuses and general requirements for miniature fuse-links*

IEC 60127-2:2003, *Miniature fuses – Part 2: Cartridge fuse-links*
Amendment 1 (2003)

IEC 60216-1:2001, *Electrical insulating materials – Properties of thermal endurance – Part 1: Ageing procedures and evaluation of test results*

IEC 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle flame test method – Apparatus, confirmatory test arrangement and guidance*