

Australian/New Zealand Standard™

Low-voltage switchgear and controlgear

**Part 5.3: Control circuit devices and
switching elements—Requirements for
proximity devices with defined
behaviour under fault conditions (PDDB)**



AS/NZS IEC 60947.5.3:2015

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 4 August 2015. This Standard was published on 23 September 2015.

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Originated as AS/NZS 3947.5.3:2000.
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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/NZS 3947.5.3:2000.

The objective of this Standard is to provide additional requirements to those given in AS/NZS IEC 60947.5.2. It addresses the fault performance aspects of proximity devices with a defined behaviour under fault conditions (PDDB). It does not address any other characteristics that can be required for specific applications.

This Standard is identical with, and has been reproduced from, IEC 60947-5-3, Ed. 2.0 (2013), *Low-voltage switchgear and controlgear, Part 5.3: Control circuit devices and switching elements—Requirements for proximity devices with defined behaviour under fault conditions (PDDB)*.

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

- (i) In the source text ‘this part of IEC 60947’ should read ‘this Australian/New Zealand Standard’.
- (ii) 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:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
IEC		AS	
60529	Degrees of protection provided by enclosures (IP Code) Amendment 1:1999	60529	Degrees of protection provided by enclosures (IP Code)
		AS/NZS IEC	
60947	Low-voltage switchgear and controlgear	60947	Low-voltage switchgear and controlgear
60947-5-1	Part 5-1: Control circuit devices and switching elements— Electromechanical control circuit devices Amendment 1:2009	60947.5.1	Part 5.1: Control circuit devices and switching elements— Electromechanical control circuit devices
		AS/NZS	
61000	Electromagnetic compatibility (EMC)	61000	Electromagnetic compatibility (EMC)
61000-4-2	Part 4-2: Testing and measurement techniques—Electrostatic discharge immunity test	61000.4.2	Part 4.2: Testing and measurement techniques—Electrostatic discharge immunity test
61000-4-3	Part 4-3: Testing and measurement techniques—Radiated, radio-frequency, electromagnetic field immunity test Amendment 1:2007 Amendment 2:2010	61000.4.3	Part 4.3: Testing and measurement techniques—Radiated, radio-frequency, electromagnetic field immunity test
61000-4-4	Part 4-4: Testing and measurement techniques—Electrical fast transient/burst immunity test	61000.4.4	Part 4.4: Testing and measurement techniques—Electrical fast transient/burst immunity test
61000-4-5	Part 4-5: Testing and measurement techniques—Surge immunity test	61000.4.5	Part 4.5: Testing and measurement techniques—Surge immunity test

IEC		AS/NZS IEC	
61000-4-6	Part 4-6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields	61000.4.6	Part 4.6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields
60947-4-11	Part 4-11: Testing and measurement techniques—Voltage dips, short interruptions and voltage variations immunity tests	60947.4.11	Part 4.11: Testing and measurement techniques—Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11, Ed. 2.0 (2004) MOD)
		AS IEC	
61131	Programmable controllers	61131	Programmable controllers
61131-2	Part 2: Equipment requirements and tests	61131.2	Part 2: Equipment requirements and tests
		AS	
61508	Functional safety of electrical/electronic/programmable electronic safety-related systems	61508	Functional safety of electrical/electronic/programmable electronic safety-related systems
61508-1	Part 1: General requirements	61508.1	Part 1: General requirements
61508-2	Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems	61508.2	Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems
61508-3	Part 3: Software requirements	61508.3	Part 3: Software requirements
62061	Safety of machinery—Functional safety of safety-related electrical, electronic and programmable electronic control systems Amendment 1:2012		Safety of machinery—Functional safety of safety-related electrical, electronic and programmable electronic control systems

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

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

CONTENTS

1	General	6
1.1	Scope.....	6
1.2	Normative references	6
2	Terms, definitions and abbreviations	8
2.1	General	8
2.2	Alphabetic index of terms	8
2.3	Basic terms and definitions.....	9
2.4	Terms and definitions concerning the architectural constraints	12
2.5	Terms and definitions concerning the parts of a PDDB	13
2.6	Terms and definitions concerning the operation of a PDDB	14
2.7	Symbols and abbreviations.....	15
3	Classification.....	15
4	Characteristics	15
4.1	General	15
4.2	Constructional characteristics.....	15
4.2.1	Proximity device with defined behaviour	15
4.2.2	Specified target	15
5	Product information	16
5.1	Nature of information.....	16
5.2	Identification.....	16
5.3	Marking	16
5.3.1	General	16
5.3.2	Connection identification and marking	16
5.4	Instructions for installation, operation and maintenance.....	16
6	Normal service, mounting and transport conditions.....	17
6.1	Normal service conditions	17
6.2	Conditions during transport and storage	17
6.3	Mounting	17
7	Constructional and performance requirements.....	17
7.1	Constructional requirements	17
7.1.1	Materials	17
7.1.2	Current-carrying parts and their connections	17
7.1.3	Clearance and creepage distances	17
7.1.4	Vacant.....	17
7.1.5	Vacant.....	17
7.1.6	Vacant.....	17
7.1.7	Terminals	17
7.1.8	Provision for protective earthing	18
7.1.9	IP degree of protection (in accordance with IEC 60529).....	18
7.2	Functional safety management.....	18
7.3	Functional requirements specification for SRCFs.....	18
7.3.1	General	18
7.3.2	Safety integrity requirements specification for SRCFs.....	18
7.3.3	Electromagnetic compatibility	18
7.3.4	Design and development of PDDB.....	20

	<i>Page</i>
7.4 Information for use	20
7.4.1 Objective	20
7.4.2 Documentation for installation, use and maintenance	20
8 Tests	21
8.1 Kind of tests	21
8.1.1 General	21
8.1.2 Type tests	21
8.1.3 Routine tests	21
8.1.4 Sampling tests	21
8.2 Compliance with constructional requirements	21
8.3 Performances	21
8.3.1 Test sequences	21
8.3.2 General test conditions	21
8.3.3 Performances under no load, normal and abnormal load conditions	21
8.3.4 Performances under short-circuit current conditions	22
8.4 Verification of operating distances	22
8.5 Verification of resistance to vibration and shock	22
8.6 Verification of electromagnetic compatibility	22
9 Modification	23
9.1 Objective	23
9.2 Modification procedure	23
Annex A (informative) Example of a simple control system in accordance with IEC 61511 series	24
Bibliography	28
Figure A.1 – Representation of the equipment under control	24
Figure A.2 – Architecture of the safety related function	25
Table 1 – EMC requirements for PDDBs	19
Table A.1 – Collection of reliability and structure data	25

AUSTRALIAN/NEW ZEALAND STANDARD

Low-voltage switchgear and controlgear

Part 5.3:

Control circuit devices and switching elements—Requirements for proximity devices with defined behaviour under fault conditions (PDDB)**1 General****1.1 Scope**

This part of IEC 60947 series provides additional requirements to those given in IEC 60947-5-2. It addresses the fault performance aspects of proximity devices with a defined behaviour under fault conditions (PDDB). It does not address any other characteristics that can be required for specific applications.

This standard does not cover proximity devices with analogue output.

This Standard does not deal with any specific requirements on acoustic noise as the noise emission of control circuit devices and switching elements is not considered to be a relevant hazard.

For a PDDB used in applications where additional characteristics, dealt with in other standards, are required, the requirements of all relevant standards apply.

The use of this standard alone does not demonstrate suitability for the implementation of any specific safety related functionality. In particular, this standard does not provide requirements for the actuation characteristics of a PDDB, or for means to reduce the effects of mutual interference between devices, e.g. coded targets. Therefore these and any other application-specific requirements will need to be considered in addition to the requirements of this standard.

NOTE 1 Due to their behaviour under fault conditions, PDDBs can, for example, be used as interlocking devices (see ISO 14119).

NOTE 2 The requirements for electro-sensitive protective equipment for the detection of persons are given in the IEC 61496 series.

1.2 Normative references

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

IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 + 12 h cycle)*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
Amendment 1:1999

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*
Amendment 1:2010