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Irish Standard
I.S. EN 60947-7-4:2013

Low-voltage switchgear and controlgear -- Part 7-4: Ancillary equipment - PCB terminal blocks for copper conductors (IEC 60947-7-4:2013 (EQV))

I.S. EN 60947-7-4:2013

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EN 60947-7-4

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English version

**Low-voltage switchgear and controlgear -
Part 7-4: Ancillary equipment -
PCB terminal blocks for copper conductors
(IEC 60947-7-4:2013)**

Appareillage à basse tension -
Partie 7-4: Matériels accessoires -
Blocs de jonction pour cartes de circuits
imprimés pour conducteurs en cuivre
(CEI 60947-7-4:2013)

Niederspannungsschaltgeräte -
Teil 7-4: Hilfseinrichtungen -
Leiterplatten-Anschlussklemmen
für Kupferleiter
(IEC 60947-7-4:2013)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 17B/1822/FDIS, future edition 1 of IEC 60947-7-4, prepared by SC 17B "Low-voltage switchgear and controlgear" of IEC/TC 17 "Switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60947-7-4:2013.

The following dates are fixed:

- latest date by which the document has to be (dop) 2014-06-10
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2016-09-10
standards conflicting with the
document have to be withdrawn

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60512-5-1	NOTE	Harmonized as EN 60512-5-1.
IEC 60512-9-5	NOTE	Harmonized as EN 60512-9-5.
IEC 60529	NOTE	Harmonized as EN 60529.
IEC 60664-1:2007	NOTE	Harmonized as EN 60664-1:2007 (not modified).
IEC 60695-2-10	NOTE	Harmonized as EN 60695-2-10.
IEC 60695-10-2	NOTE	Harmonized as EN 60695-10-2.
IEC 60695-11-5	NOTE	Harmonized as EN 60695-11-5.
IEC 60998-1:2002	NOTE	Harmonized as EN 60998-1:2004 (modified).
IEC 61984	NOTE	Harmonized as EN 61984.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-20	-	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	-
IEC 60352-1	-	Solderless connections - Part 1: Wrapped connections - General requirements, test methods and practical guidance	EN 60352-1	-
IEC 60352-2	-	Solderless connections - Part 2: Crimped connections - General requirements, test methods and practical guidance	EN 60352-2	-
IEC 60352-3	-	Solderless connections - Part 3: Solderless accessible insulation displacement connections - General requirements, test methods and practical guidance	EN 60352-3	-
IEC 60352-4	-	Solderless connections - Part 4: Solderless non-accessible insulation displacement connections - General requirements, test methods and practical guidance	EN 60352-4	-
IEC 60352-5	-	Solderless connections - Part 5: Press-in connections - General requirements, test methods and practical guidance	EN 60352-5	-
IEC 60352-6	-	Solderless connections - Part 6: Insulation piercing connections - General requirements, test methods and practical guidance	EN 60352-6	-
IEC 60352-7	-	Solderless connections - Part 7: Spring clamp connections - General requirements, test methods and practical guidance	EN 60352-7	-
IEC 60512-2-1	-	Connectors for electronic equipment - Tests and measurements - Part 2-1: Electrical continuity and contact resistance tests - Test 2a: Contact resistance - Millivolt level method	EN 60512-2-1	-

I.S. EN 60947-7-4:2013

EN 60947-7-4:2013

- 4 -

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60512-4-1	-	Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof	EN 60512-4-1	-
IEC 60512-5-2	-	Connectors for electronic equipment - Tests and measurements - Part 5-2: Current-carrying capacity tests - Test 5b: Current-temperature derating	EN 60512-5-2	-
IEC 60512-11-7	-	Connectors for electronic equipment - Tests and measurements - Part 11- 7: Climatic tests - Test 11g: Flowing mixed gas corrosion test	EN 60512-11-7	-
IEC 60512-11-9	-	Connectors for electronic equipment - Tests and measurements - Part 11-9: Climatic tests - Test 11i: Dry heat	EN 60512-11-9	-
IEC 60512-11-10	-	Connectors for electronic equipment - Tests and measurements - Part 11-10: Climatic tests - Test 11j: Cold	EN 60512-11-10	-
IEC 60695-2-11	-	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	-
IEC 60695-2-12	-	Fire hazard testing - Part 2-12: Glowing/hot-wire based test methods - Glow-wire flammability index (GWFI) test method for materials	EN 60695-2-12	-
IEC 60695-2-13	-	Fire hazard testing - Part 2-13: Glowing/hot-wire based test methods - Glow-wire ignition temperature (GWIT) test method for materials	EN 60695-2-13	-
IEC 60947-1 + A1	2007 2010	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1 + A1	2007 2011
IEC 60998-2-3	-	Connecting devices for low-voltage circuits for household and similar purposes - Part 2-3: Particular requirements for connecting devices as separate entities with insulation-piercing clamping units	EN 60998-2-3	-
IEC 60999-1	-	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm ² up to 35 mm ² (included)	EN 60999-1	-
IEC 60999-2	-	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 2: Particular requirements for clamping units for conductors above 35 mm ² up to 300 mm ² (included)	EN 60999-2	-
IEC 61210	-	Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements	EN 61210	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 6988	-	Metallic and other non-organic coatings - Sulfur dioxide test with general condensation of moisture	EN ISO 6988	-

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 General	7
1.1 Scope.....	7
1.2 Normative references	7
2 Terms and definitions	9
3 Classification	10
4 Characteristics	10
4.1 Summary of characteristics	10
4.2 Type of PCB terminal block	10
4.3 Rated and limiting values	10
4.3.1 Rated voltages	10
4.3.2 Rated current	10
4.3.3 Standard cross-sections	10
4.3.4 Maximum cross-section	11
4.3.5 Connecting capacity	11
5 Product information	12
5.1 Marking	12
5.2 Additional information.....	13
6 Normal service, mounting and transport conditions.....	13
7 Constructional and performance requirements.....	13
7.1 Constructional requirements	13
7.1.1 Clamping units.....	13
7.1.2 Mounting and installation	14
7.1.3 Clearances and creepage distances	14
7.1.4 Terminal identification and marking	14
7.1.5 Resistance to abnormal heat and fire.....	15
7.1.6 Maximum cross-section and connecting capacity.....	15
7.2 Performance requirements	15
7.2.1 Temperature rise	15
7.2.2 Dielectric properties.....	15
7.2.3 Short-time withstand current.....	15
7.2.4 Contact resistance.....	16
7.2.5 Ageing test (climatic sequence and corrosion test)	16
7.3 Electromagnetic compatibility (EMC)	16
8 Tests	16
8.1 Kinds of test	16
8.2 General	16
8.3 Verification of mechanical characteristics	17
8.3.1 General	17
8.3.2 Attachment of the PCB terminal block on its support.....	17
8.3.3 Vacant.....	17
8.3.4 Verification of the maximum cross-section and connecting capacity.....	17
8.3.5 Verification of maximum cross-section (special test with gauges)	17
8.4 Verification of electrical characteristics.....	17
8.4.1 General	17

8.4.2	Verification of clearances and creepage distances.....	18
8.4.3	Dielectric tests.....	18
8.4.4	Verification of contact resistance	19
8.4.5	Temperature rise test	20
8.4.6	Short-time withstand current test	22
8.4.7	Ageing test (climatic sequence and corrosion test)	23
8.5	Verification of thermal characteristics	24
8.6	Verification of EMC characteristics	25
8.6.1	General	25
8.6.2	Immunity.....	25
8.6.3	Emission.....	25
Annex A (informative)	Structure of a PCB terminal block.....	26
Annex B (informative)	Additional Information to be specified between manufacturer and user	27
Annex C (informative)	Examples of PCBs and PCB terminal blocks for high current application	28
Bibliography	30
Figure 1	– Test assembly for the measurement of contact resistance and temperature rise	20
Figure 2	– Example of wiring structure of a multi-tier PCB terminal block	21
Figure 3	– Test assembly for the measurement of short-time withstand current.....	23
Figure 4	– Test sequence	24
Figure A.1	– Structure of a PCB terminal block	26
Figure C.1	– Structure of a high current PCB	28
Figure C.2	– PCB terminal block with soldered connection to the PCB	28
Figure C.3	– PCB terminal block with screwed connection to the PCB	29
Table 1	– Standard cross-sections of copper conductors	11
Table 2	– Relationship between maximum cross-section and connecting capacity of PCB terminal blocks.....	12
Table 3	– Standards for clamping units and connecting methods	14
Table 4	– Impulse withstand test voltages.....	19
Table 5	– Dielectric test voltages corresponding to the rated insulation voltage	19
Table 6	– Length of connectable conductors and conductor loops.....	21
Table 7	– Examples of cross-sectional distribution of interconnections on printed circuit boards	22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

**Part 7-4: Ancillary equipment –
PCB terminal blocks for copper conductors**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60947-7-4 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

The text of this standard is based on the following documents:

FDIS	Report on voting
17B/1822/FDIS	17B/1827/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60947 series, published under the general title *Low-voltage switchgear and controlgear*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This standard IEC 60947-7-4 for PCB terminal blocks covers not only the terminal block requirements according to IEC 60947-7 series but also takes into account the specifications of connectors according to IEC 61984 as the requirements for both components are highly similar due to equivalent applications.

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 7-4: Ancillary equipment – PCB terminal blocks for copper conductors

1 General

1.1 Scope

This part of IEC 60947 specifies requirements for PCB terminal blocks primarily intended for industrial or similar use.

Mounting and fixing on the printed circuit board is made by soldering, press-in or equivalent methods to provide electrical and mechanical connection between copper conductors and the printed circuit board.

This standard applies to PCB terminal blocks intended to connect copper conductors, with or without special preparation, having a cross-section between 0,05 mm² and 300 mm² (AWG 30/600 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.

NOTE 1 Large cross section terminal blocks are dedicated to specific design of high current PCBs. The range up to 300 mm² is kept to cover any possible application. Examples of high current PCBs and PCB terminal blocks are shown in Annex C.

NOTE 2 AWG is the abbreviation of “American Wire Gage” (Gage (US) = Gauge (UK));

kcmil = 1 000 cmil;

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

1 mil = 1/1 000 inch.

This standard may be used as a guide for special types of PCB terminal blocks with components, such as disconnect units, integrated cartridge fuse-links and the like.

If applicable, in this standard the term “clamping unit” is used instead of “terminal”. This is taken into account in case of references to IEC 60947-1.

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 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60352-1, *Solderless connections – Part 1: Wrapped connections – General requirements, test methods and practical guidance*

IEC 60352-2, *Solderless connections – Part 2: Crimped connections – General requirements, test methods and practical guidance*

IEC 60352-3, *Solderless connections – Part 3: Solderless accessible insulation displacement connections – General requirements, test methods and practical guidance*

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