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NSAI Standards

Irish Standard
I.S. EN 61984:2009

Connectors - Safety requirements and tests (IEC 61984:2008 (EQV))

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I.S. EN 61984:2009

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61984

June 2009

ICS 31.220.10

Supersedes EN 61984:2001

English version

Connectors - Safety requirements and tests
(IEC 61984:2008)

Connecteurs -
Exigences de sécurité et essais
(CEI 61984:2008)

Steckverbinder -
Sicherheitsanforderungen und Prüfungen
(IEC 61984:2008)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

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Ref. No. EN 61984:2009 E

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Foreword

The text of document 48B/1927/FDIS, future edition 2 of IEC 61984, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61984 on 2009-06-01.

This European Standard supersedes EN 61984:2001.

EN 61984:2009 includes the following significant technical changes with respect to EN 61984:2001:

– addition in the scope of the statement that this standard may be used as a guide for connectors with rated current higher than 125 A per pole;

– new definitions added and improvement of existing definitions;

– in Clause 5, the classification referred to protection against electric shock and that of connector for class II equipment were added;

– in 6.4 (Protection against electric shock), it is clarified that all parts which are necessary to ensure protection against electric shock shall only be removable by the aid of a tool;

– Table 2 and Table 3 are added for better readability and connecting methods updated to current status of standardization;

– values for cable clamp testing in Table 6 are adopted according to EN 50262 and no tests are required if metric cable glands according to this standard are used;

– tables in 6.19 are deleted and the text refers to EN 60664;

– Table 7 (Values for torque for screw-type clamping units) in 7.1.4 of EN 61984:2001 is deleted and the text refers to the relevant standards;

– Subclause 7.3.7 of EN 61984:2001 is modified. In 7.3.8 of EN 61984:2009, the length of the connecting cable and conductor loops are added. Test arrangements for temperature rise test for two-part printed board connectors are fixed;

– Figure 2 (Device for bending test) transferred from 7.3.8 (Mechanical operation) of EN 61984:2001 to 7.3.10 (Bending (flexing) test) of EN 61984:2009;

– in Table 10 (Mechanical test group A) test phase A3, the severity or conditions for unenclosed and enclosed connectors are specified;

– the informative Annex B (Additional information on connector classification) with its Tables B.1 (Scheme of connectors) and B.2 (Help for the classification of connectors) are added for better readability of the standard.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2010-03-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-06-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61984:2008 was approved by CENELEC as a European Standard without any modification.

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

IEC 60068-2-20 + A2	NOTE	Harmonized as HD 323.2.20 S3:1988 (not modified).
IEC 60112	NOTE	Harmonized as EN 60112:2003 (not modified).
IEC 60364-5-54	NOTE	Harmonized as HD 60364-5-54:2007 (modified).
IEC 60423	NOTE	Harmonized as EN 60423:2007 (not modified).
IEC 60695-2-12	NOTE	Harmonized as EN 60695-2-12:2001 (not modified).
IEC 60695-10-2	NOTE	Harmonized as EN 60695-10-2:2003 (not modified).
IEC 60695-11-5	NOTE	Harmonized as EN 60695-11-5:2005 (not modified).
IEC 60998-2-1	NOTE	Harmonized as EN 60998-2-1:2002 (modified).
IEC 60998-2-2	NOTE	Harmonized as EN 60998-2-2:2002 (modified).

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Publication	Year	Title	EN/HD	Year
IEC 60352-4	1994	Solderless connections - Part 4: Solderless non-accessible insulation displacement connections - General requirements, test methods and practical guidance	EN 60352-4	1994
IEC 60352-5	- [1)]	Solderless connections - Part 5: Press-in connections - General requirements, test methods and practical guidance	EN 60352-5	2008 [2)]
IEC 60352-6	- [1)]	Solderless connections - Part 6: Insulation piercing connections - General requirements, test methods and practical guidance	EN 60352-6	1997 [2)]
IEC 60352-7	- [1)]	Solderless connections - Part 7: Spring clamp connections - General requirements, test methods and practical guidance	EN 60352-7	2002 [2)]
IEC 60364-4-41 (mod)	- [1)]	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41 + corr. July	2007 [2)] 2007
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-
IEC 60512	Series	Connectors for electronic equipment - Tests and measurements	EN 60512	Series
IEC 60512-1-100	- [1)]	Connectors for electronic equipment - Tests and measurements - Part 1-100: General - Applicable publications	EN 60512-1-100	2006 [2)]
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
A1	1999		A1	2000
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-5	2007	Insulation coordination for equipment within low-voltage systems - Part 5: Comprehensive method for determining clearances and creepage distances equal to or less than 2 mm	EN 60664-5	2007
IEC 60760	- [1)]	Flat, quick-connect terminations	-	-
IEC 60998-2-3 (mod)	2002	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	2004
IEC 60999-1	1999	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 mm² up to 35 mm² (included)	EN 60999-1	2000

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS – SAFETY REQUIREMENTS AND TESTS

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 61984 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

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

FDIS	Report on voting
48B/1927/FDIS	48B/1947/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.

This second edition cancels and replaces the first edition published in 2001. This edition constitutes a technical revision.

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This edition included the following significant technical changes with respect to the previous edition:

1) Addition in the scope of the statement that this standard may be used as a guide for connectors with rated current higher than 125 A per pole.
2) New definitions added and improvement of existing definitions.
3) In Clause 5, the classification referred to protection against electric shock and that of connector for class II equipment were added.
4) In 6.4 (Protection against electric shock), it is clarified that all parts which are necessary to ensure protection against electric shock shall only be removable by the aid of a tool.
5) Table 2 and Table 3 are added for better readability and connecting methods updated to current status of standardisation.
6) Values for cable clamp testing in Table 6 are adopted according to EN 50262 and no tests are required if metric cable glands according to this standard are used.
7) Tables in 6.19 are deleted and the text refers to IEC 60664.
8) Table 7 (Values for torque for screw-type clamping units) in 7.1.4 of the 2001 edition is deleted and the text refers to the relevant standards.
9) Subclause 7.3.7 of the 2001 edition is modified. Length of the connecting cable and conductor loops are added. Test arrangements for temperature rise test for two-part printed board connectors are fixed.
10) Figure 2 (Device for bending test) transferred from 7.3.8 (Mechanical operation) of the 2001 edition to Clause 7.3.10 (Bending (flexing) test) of the present edition.
11) In Table 10 (Mechanical test group A) test phase A3, the severity or conditions for unenclosed and enclosed connectors are specified.
12) The informative Annex B (Additional information on connector classification) with its Tables B.1 (Scheme of connectors) and B.2 (Help for the classification of connectors) are added for better readability of the standard.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

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CONNECTORS – SAFETY REQUIREMENTS AND TESTS

1 Scope

This International Standard applies to connectors with rated voltages above 50 V and up to 1000 V a.c. and d.c. and rated currents up to 125 A per contact, for which either no detail specification (DS) exists or the DS calls up this standard for safety aspects.

For connectors with rated voltage up to 50 V, this standard may be used as a guide. In this case, reference is made to IEC 60664-1 for clearance and creepage distances.

This standard may also be used as a guide for connectors with rated current higher than 125 A per pole.

This standard does not apply to connectors in or on equipment where application specific safety requirements for connectors exist.

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 60050-581, *International Electrotechnical Vocabulary (IEV) – Chapter 581: Electromechanical components for electronic equipment*

IEC 60050-826, *International Electrotechnical Vocabulary (IEV) – Chapter 826: Electrical installations*

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-70, *Environmental testing – Part 2: Tests – Test Xb: Abrasion of marking and letterings caused by rubbing of fingers and hands*

IEC 60228: 2004*, Conductors of insulated cables*

IEC 60309-1:1999, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements*
Amendment 1 (2005)

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 60352-3:1993, *Solderless connections – Part 3: Solderless accessible insulation displacement connections – General requirements, test methods and practical guidance*

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