



NSAI
Standards

Irish Standard
I.S. EN 60512-29-100:2015

Connectors for electronic equipment - Tests and measurements - Part 29-100: Signal integrity tests up to 500 MHz on M12 style connectors - Tests 29a to 29g

I.S. EN 60512-29-100:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 60512-29-100:2015 is the adopted Irish version of the European Document EN 60512-29-100:2015, Connectors for electronic equipment - Tests and measurements - Part 29-100: Signal integrity tests up to 500 MHz on M12 style connectors - Tests 29a to 29g

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EUROPEAN STANDARD

EN 60512-29-100

NORME EUROPÉENNE

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September 2015

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English Version

**Connectors for electronic equipment - Tests and measurements
- Part 29-100: Signal integrity tests up to 500 MHz on M12 style
connectors - Tests 29a to 29g
(IEC 60512-29-100:2015)**

Connecteurs pour équipements électroniques - Essais et
mesures - Partie 29-100: Essais d'intégrité des signaux
jusqu'à 500 MHz sur les connecteurs de type M12 - Essais
29a à 29g
(IEC 60512-29-100:2015)

Steckverbinder für elektronische Einrichtungen - Mess- und
Prüfverfahren - Teil 29-100: Signalintegritätsprüfungen bis
500 MHz an Steckverbindern M12 - Prüfungen 29a bis 29g
(IEC 60512-29-100:2015)

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Comité Européen de Normalisation Electrotechnique
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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 60512-29-100:2015

European foreword

The text of document 48B/2410/FDIS, future edition 1 of IEC 60512-29-100, 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 approved by CENELEC as EN 60512-29-100:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-01-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-04-09

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IEC 60512-27-100

NOTE Harmonized as EN 60512-27-100.

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

| <u>Publication</u> | <u>Year series</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year series</u> |
|----------------------------|--------------------|--|-----------------|--------------------|
| IEC 60050 | | International Electrotechnical Vocabulary | - | |
| IEC 60512-1 | - | Connectors for electronic equipment - Tests and measurements -- Part 1: General | EN 60512-1 | - |
| IEC 60512-26-100 | - | Connectors for electronic equipment - Tests and measurements -- Part 26-100: Measurement setup, test and reference arrangements and measurements for connectors according to IEC 60603-7 - Tests 26a to 26g | EN 60512-26-100 | - |
| IEC 61076-1 | - | Connectors for electronic equipment - Product requirements -- Part 1: Generic specification | EN 61076-1 | - |
| IEC 61076-2-101 | - | Connectors for electronic equipment - Product requirements -- Part 2-101: Circular connectors - Detail specification for M12 connectors with screw-locking | EN 61076-2-101 | - |
| IEC 61076-2-109 | - | Connectors for electronic equipment - Product requirements -- Part 2-109: Circular connectors - Detail specification for connectors with m 12 x 1 screw-locking, for data transmissions with frequencies up to 500 MHz | EN 61076-2-109 | - |
| IEC 61169-16 | - | Radio-frequency connectors -- Part 16: RF coaxial connectors with inner diameter of outer conductor 7 mm (0,276 in) with screw coupling - Characteristic impedance 50 ohms (75 ohms) (Type N) | EN 61169-16 | - |
| ISO/IEC 11801 | - | Information technology - Generic cabling for customer premises | - | - |
| EN 50289-1-14 | - | Communication cables - Specifications for test methods - Part 1-14: Electrical test methods - Coupling attenuation or screening attenuation of connecting hardware | - | - |
| ITU-T Recommendation G.117 | - | Transmission aspects of unbalance about earth | - | - |
| ITU-T Recommendation O.9 | - | Measuring arrangements to assess the degree of unbalance about earth | - | - |

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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Connectors for electronic equipment – Tests and measurements –
Part 29-100: Signal integrity tests up to 500 MHz on M12 style connectors –
Tests 29a to 29g**

**Connecteurs pour équipements électroniques – Essais et mesures –
Partie 29-100: Essais d'intégrité des signaux jusqu'à 500 MHz sur les
connecteurs de type M12 – Essais 29a à 29g**



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IEC 60512-29-100

Edition 1.0 2015-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Connectors for electronic equipment – Tests and measurements –
Part 29-100: Signal integrity tests up to 500 MHz on M12 style connectors –
Tests 29a to 29g**

**Connecteurs pour équipements électroniques – Essais et mesures –
Partie 29-100: Essais d'intégrité des signaux jusqu'à 500 MHz sur les
connecteurs de type M12 – Essais 29a à 29g**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRONIC EQUIPMENT –
TESTS AND MEASUREMENTS –****Part 29-100: Signal integrity tests up
to 500 MHz on M12 style connectors –
Tests 29a to 29g**

FOREWORD

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International Standard IEC 60512-29-100 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

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

| | |
|---------------|------------------|
| FDIS | Report on voting |
| 48B/2410/FDIS | 48B/2424/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 60512 series, published under the general title *Connectors for electronic equipment – Tests and measurements*, 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

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CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 29-100: Signal integrity tests up to 500 MHz on M12 style connectors – Tests 29a to 29g

1 Scope and object

This part of IEC 60512 specifies the test methods for transmission performance for M12-style connectors up to 500 MHz. It is also suitable for testing lower frequency connectors if they meet the requirements of the detail specifications and of this standard.

NOTE 1 All figures show equipment for connectors according to IEC 61076-2-109 as an example.

The test methods provided herein are:

- insertion loss, test 29a;
- return loss, test 29b;
- near-end crosstalk (NEXT) test 29c;
- far-end crosstalk (FEXT), test 29d;
- transverse conversion loss (TCL), test 29f;
- transverse conversion transfer loss (TCTL), test 29g.

For the transfer impedance (ZT) test, see IEC 60512-26-100, test 26e.

For the coupling attenuation see ISO/IEC 11801.

All test methods apply for two and four pair connectors.

NOTE 2 All figures show schemes for four pair cabling and are also suitable for two pair cabling.

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 60050 (all parts): *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

IEC 60512-1, *Connectors for electronic equipment – Tests and measurements – Part 1: General*

IEC 60512-26-100, *Connectors for electronic equipment – Tests and measurements – Part 26-100: Measurement setup, test and reference arrangements and measurements for connectors according to IEC 60603-7 – Tests 26a to 26g*

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