Irish Standard
I.S. EN 61076-2-107:2010

Connectors for electronic equipment - Product requirements -- Part 2-107: Detail specification for circular hybrid connectors M12 with electrical and fibre-optic contacts with screw locking (IEC 61076-2-107:2010 (EQV))

I.S. EN 61076-2-107:2010

Incorporating amendments/corrigenda issued since publication:

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EUROPEAN STANDARD

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EN 61076-2-107

June 2010

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English version

Connectors for electronic equipment - Product requirements - Part 2-107: Detail specification for circular hybrid connectors M12 with electrical and fibre-optic contacts with screw locking

(IEC 61076-2-107:2010)

Connecteurs pour équipements électroniques -
Exigences de produit -
Partie 2-107: Spécification particulière relative aux connecteurs circulaires hybrides M12 à contacts électriques et à fibres optiques, à verrouillage par vis
(CEI 61076-2-107:2010)

Steckverbinder für elektronische Einrichtungen – Produktanforderungen --
Teil 2-107: Bauartspezifikation für hybride Rundsteckverbinder M12 mit elektrischen und LWL-Kontakten
und mit Schraubverriegelung
(IEC 61076-2-107:2010)

This European Standard was approved by CENELEC on 2010-06-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61076-2-107:2010 E

Foreword

The text of document 48B/2141/FDIS, future edition 1 of IEC 61076-2-107, 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 61076-2-107 on 2010-06-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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)	2011-03-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2013-06-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61076-2-107:2010 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 61076-2-001:2001	NOTE	Harmonized as EN 61076-2-001:2001 (not modified).
IEC 61076-2-101:2008	NOTE	Harmonized as EN 61076-2-101:2008 (not modified).
IEC 61300-2-12:2009	NOTE	Harmonized as EN 61300-2-12:2009 (not modified).
IEC 61300-2-17:2003	NOTE	Harmonized as EN 61300-2-17:2003 (not modified).
IEC 61300-2-18:2005	NOTE	Harmonized as EN 61300-20-18:2005 (not modified).
IEC 61300-2-42:2005	NOTE	Harmonized as EN 61300-2-42:2005 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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

Publication	Year	Title	EN/HD	Year
-	-	Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications - Part 7-4: LC-PC simplex terminated on IEC 60793-2 category B1.1 singlemode fibre	EN 50377-7-4	-
IEC 60050-581	2008	International Electrotechnical Vocabulary - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60068-1 + A1	1988 1992	Environmental testing - Part 1: General and guidance	EN 60068-1 -[1)]	1994 -
IEC 60352	Series	Solderless connections	EN 60352	Series
IEC 60512-1-100	-	Connectors for electronic equipment - Tests and measurements - Part 1-100: General - Applicable publications	EN 60512-1-100	-
IEC 60529	2001	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60664-1	-	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	-
IEC 60793-2-40	-	Optical fibres - Part 40: Product specifications - Sectional specification for categroy A4 multimode fibres	EN 60793-2-40	-
IEC 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN 60793-2-50	-
IEC 60998-2-1 (mod)	2002	Connecting devices for low-voltage circuits for household and similar purposes - Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units	EN 60998-2-1	2004

[1)] EN 60068-1 includes A1 to IEC 60068-1 + corr. October .

Publication	Year	Title	EN/HD	Year
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
IEC 61076-1	2006	Connectors for electronic equipment - Product requirements - Part 1: Generic specification	EN 61076-1	2006
IEC 61300-2-1	2009	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-1: Tests - Vibration (sinusoidal)	EN 61300-2-1	2009
IEC 61300-2-2	2009	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-2: Tests - Mating durability	EN 61300-2-2 + corr. May	2009 2009
IEC 61300-2-4	1995	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4: Tests - Fibre/cable retention	EN 61300-2-4	1997
IEC 61300-2-5	2009	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-5: Tests - Torsion	FprEN 61300-2-5	2008
IEC 61300-2-26	2006	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-26: Tests - Salt mist	EN 61300-2-26	2007
IEC 61300-2-27	1995	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-27: Tests - Dust - Laminar flow	EN 61300-2-27	1997
IEC 61300-3-4	2001	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation	EN 61300-3-4	2001
IEC 61300-3-6	2008	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-6: Examinations and measurements - Return loss	EN 61300-3-6	2009
IEC 61300-3-10	2006	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-10: Examinations and measurements - Gauge retention force	EN 61300-3-10	2007
IEC 61300-3-34	2009	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-34: Examinations and measurements - Attenuation of random mated connectors	EN 61300-3-34	2009

Publication	Year	Title	EN/HD	Year
IEC 61753-022-2	-	Fibre optic interconnecting devices and passive components performance standard - Part 022-2: Fibre optic connectors terminated on multimode fibre for category C - Controlled environment	EN 61753-022-2	-
IEC 61754-20	2002	Fibre optic connector interfaces - Part 20: Type LC connector family	EN 61754-20	2002
IEC 61755-2-1	-	Fibre optic connector optical interfaces - Part 2-1: Optical interface standard single mode non-angled physically contacting fibres	EN 61755-2-1	-
IEC 61755-3-1	-	Fibre optic connector optical interfaces - Part 3-1: Optical interface, 2,5 mm and 1,25 mm diameter cylindrical full zirconia PC ferrule, single mode fibre	EN 61755-3-1	-
IEC 61984	2008	Connectors - Safety requirements and tests	EN 61984	2009
ISO 1302	-	Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation	EN ISO 1302	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2–107: Detail specification for circular hybrid connectors M12 with electrical and fibre-optic contacts with screw locking

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 61076-2-107 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment, in cooperation with subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

IEC 61076-2-107 cancels and replaces IEC/PAS 61076-2-107 issued in 2007.

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

FDIS	Report on voting
48B/2141/FDIS	48B/2181/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.

A list of all parts of IEC 61076 series, under the general title *Connectors for electronic equipment – Product requirements*, can be found on the IEC website.

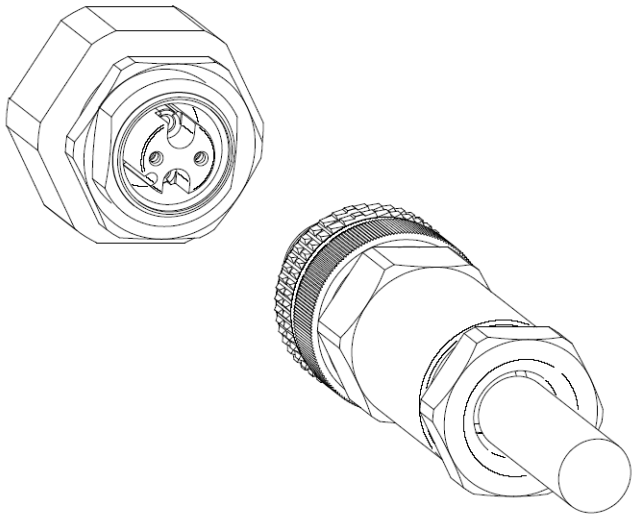
This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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.

<table>
<tr><td>IEC SC 48B – Connectors

Specification available from:
IEC General secretariat
or from the addresses shown on the inside cover.</td><td>IEC 61076-2-107, Ed. 1.0</td></tr>
<tr><td>ELECTRONIC COMPONENTS

DETAIL SPECIFICATION in accordance with IEC 61076-1</td><td></td></tr>
<tr><td rowspan="2"> 
IEC 731/10</td><td>Circular hybrid connectors with M12 screw locking, with 2 electrical contacts with Ø 1,0 male contacts and with 2 fibre optic contacts Ø 1,25 mm ferrule in accordance with IEC 61755-3-1 grade 1</td></tr>
<tr><td>Free cable connectors
Straight connectors

Fixed connectors

Flange mounting
Single hole mounting

Adapters

Feed-through</td></tr>
</table>

CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2–107: Detail specification for circular hybrid connectors M12 with electrical and fibre-optic contacts with screw locking

1 General information

1.1 Scope

This standard describes circular M12 connectors typically used for industrial process measurement and control. These connectors consist of fixed and free connectors with screw-locking as well as adaptors.

The connectors are suitable to connect two optic fibres and two electrical wires intended for power transmission to the optionally integrated transmitter and receiver, not specified in this standard.

Male connectors have round electrical contacts Ø 1,0 mm and round optical contacts with the ferrule Ø 1,25 mm according to IEC 61754-20, grade 1 for

All-silica optical fibre cables

single mode fibre 9/125 μm

multimode fibre 50/125 μm or 62,5/125 μm

NOTE M12 is the dimension of the thread of the screw locking mechanism of these circular connectors.

Throughout this standard dimensions are in mm.

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 60050 (581): 2008, *International Electrotechnical Vocabulary (IEV): Part 581: Electromechanical components for electronic equipment*

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1 (1992)

IEC 60352 (all parts), *Solderless connections*

IEC 60512-1-100: *Connectors for electronic equipment – Tests and measurements – Part 1-100: General – Applicable publications*

IEC 60529:2001, *Degrees of protection provided by enclosures (IP code)*

IEC 60664-1: *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60793-2-40, *Optical fibres – Part 2-40: Product specifications – Sectional specification for category A4 multimode fibres*