SLOVENSKI STANDARD
SIST EN 61076-2-101:2012

01-oktober-2012

Konektorji za elektronsko opremo - Zahteve za izdelek - 2-101. del: Okrogli konektorji - Podrobna specifikacija za konektorje M12 z vijačnim zaklepanjem

Connectors for electronic equipment - Product requirements - Part 2-101: Circular connectors - Detail specification for M12 connectors with screw-locking

Steckverbinder für elektronische Einrichtungen - Produktanforderungen - Teil 2-101: Rundsteckverbinder - Bauartspezifikation für Steckverbinder M12 mit Schraubverriegelung

Connecteurs pour équipements électroniques - Exigences de produit - Partie 2-101: Connecteurs circulaires - Spécification particulière pour les connecteurs M12 à vis

Ta slovenski standard je istoveten z: EN 61076-2-101:2012

ICS:

31.220.10	Vtiči in vtičnice, konektorji	Plug-and-socket devices. Connectors

SIST EN 61076-2-101:2012 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61076-2-101

August 2012

ICS 31.220.10

Supersedes EN 61076-2-101:2008

English version

Connectors for electronic equipment - Product requirements - Part 2-101: Circular connectors - Detail specification for M12 connectors with screw-locking

(IEC 61076-2-101:2012)

Connecteurs pour équipements électroniques - Exigences de produit - Partie 2-101: Connecteurs circulaires - Spécification particulière pour les connecteurs M12 à vis

(CEI 61076-2-101:2012)

Steckverbinder für elektronische Einrichtungen - Produktanforderungen - Teil 2-101: Rundsteckverbinder - Bauartspezifikation für Steckverbinder M12 mit Schraubverriegelung

(IEC 61076-2-101:2012)

This European Standard was approved by CENELEC on 2012-05-25. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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 61076-2-101:2012 E

Foreword

The text of document 48B/2279/FDIS, future edition 3 of IEC 61076-2-101, 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 61076-2-101:2012.

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)	2013-02-25
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-05-25

This document supersedes EN 61076-2-101:2008.

EN 61076-2-101:2012 includes the following significant technical changes with respect to EN 61076-2-101:2008:

- the drawings of some styles have been corrected;
- a new style with maximum 17 poles, with A-coding, has been added, as new applications for the industrial process measurement and control require a high number of poles in M12 circular connectors. The existing styles and dimensions which were specified in EN 61076-2-101:2008 are further applicable for the added interface dimension of the 17 poles versions;
- removal of the type designation and ordering information, former Tables 6 and 7 have been updated accordingly;
- inclusion of the technical content of IEC/PAS 61076-2-108, which will be withdrawn after the publication of this European Standard. The drawings have been updated and correction to the title of Figure 9 was made.

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

Endorsement notice

The text of the International Standard IEC 61076-2-101:2012 was approved by CENELEC as a European Standard without any modification.

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.

Publication	Year	Title	EN/HD	Year
IEC 60050-581	2008	International Electrotechnical Vocabulary (IEV) - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-60	-	Environmental testing - Part 2: Tests - Test Ke: Flowing mixed gas corrosion test	EN 60068-2-60	-
IEC 60352	Series	Solderless connections	EN 60352	Series
IEC 60423	2007	Conduit systems for cable management - Outside diameters of conduits for electrical installations and threads for conduits and fittings	EN 60423	2007
IEC 60512	Series	Connectors for electronic equipment - Tests and measurements	EN 60512	Series
IEC 60512-1-100	-	Connectors for electronic equipment - Tests and measurements - Part 1-100: General - Applicable publications	EN 60512-1-100	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60664-1	-	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	-
IEC 60998-2-1	-	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	-
IEC 60999	Series	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units	EN 60999	Series
IEC 61076-1	2006	Connectors for electronic equipment - Product requirements - Part 1: Generic specification	EN 61076-1	2006
IEC 61984	-	Connectors - Safety requirements and tests	EN 61984	-
ISO 1302	-	Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation	EN ISO 1302	-

IEC 61076-2-101

Edition 3.0 2012-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Connectors for electronic equipment – Product requirements – Part 2-101: Circular connectors – Detail specification for M12 connectors with screw-locking

Connecteurs pour équipements électroniques – Exigences de produit – Partie 2-101: Connecteurs circulaires – Spécification particulière pour les connecteurs M12 à vis

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX XA

ICS 31.220.10

ISBN 978-2-8322-0058-2

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2-101: Circular connectors – Detail specification for M12 connectors 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.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61076-2-101 has been prepared by sub-committee 48B: Connectors, of Technical Committee 48: Electromechanical components and mechanical structures for electronic equipment.

This third edition cancels and replaces the second edition published in 2008 and its corrigendum published in 2010. It constitutes a technical revision.

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

– The drawings of some styles have been corrected.

– A new style with maximum 17 poles, with A-coding, has been added, as new applications for the industrial process measurement and control require a high number of poles in M12 circular connectors. The existing styles and dimensions which were

specified in IEC 61076-2-101 Ed. 2 are further applicable for the added interface dimension of the 17 poles versions.

– Removal of the type designation and ordering information, former Tables 6 and 7 have been updated accordingly.

– Inclusion of the technical content of IEC PAS 61076-2-108, which will be withdrawn after publication of this International Standard. The drawings have been updated and correction to the title of Figure 9 was made.

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

FDIS	Report on voting
48B/2279/FDIS	48B/2288/RVD

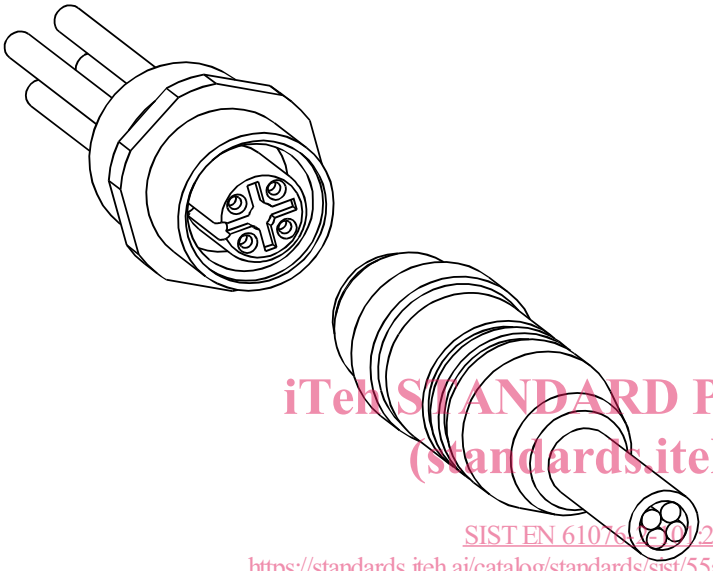
Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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.

IEC SC 48B – Connectors Specification available from: IEC General secretariat or from the addresses shown on the inside cover.	IEC 61076-2-101 Ed. 3.0
ELECTRONIC COMPONENTS DETAIL SPECIFICATION in accordance with IEC 61076-1	
 IEC 2336/03	Circular connectors M12 2 to 17 way Male and female contacts Male and female connectors Rewireable – Non-rewireable
	Free cable connectors Straight and right angle connectors Fixed connectors Fixed connectors with glass to metal seals (pin contacts only) Flange mounting Single hole mounting Pin sockets

CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2-101: Circular connectors – Detail specification for M12 connectors with screw-locking

1 Scope

This part of IEC 61076 describes M12 circular connectors typically used for industrial process measurement and control. These connectors consist of fixed and free connectors either rewireable or non-rewireable, with screw-locking. The connectors with glass to metal seal are fixed connectors only which consist of fixed glass to metal sealed styles with rewireable male contacts and are intermateable with corresponding free connectors according to this International Standard. Male connectors have round contacts ∅ 0,6 mm, ∅ 0,76 mm, ∅ 0,8 mm and ∅ 1,0 mm.

The different codings prevent the mating of these coded male or female connectors to any other interfaces and cross-mating between the different codings.

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

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

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

IEC 60068-2-60, *Environmental testing – Part 2: Tests –Test Ke: Flowing mixed gas corrosion test*

IEC 60352 (all parts), *Solderless connections*

IEC 60423:2007, *Conduit systems for cable management – Outside diameters of conduits for electrical installations and threads for conduits and fittings*

IEC 60512 (all parts), *Connectors for electronic equipment – Tests and measurements*

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

IEC 60529:1989, *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 60998-2-1, *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*

IEC 60999 (all parts), *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units*

IEC 61076-1:2006, *Connectors for electronic equipment – Product requirements – Part 1: Generic specification*

IEC 61984, *Connectors – Safety requirements and tests*

ISO 1302*: Technical drawings – Methods of indicating surface texture*

3 Technical information

3.1 Terms and definitions

For the purposes of this document, terms and definitions from IEC 60050-581 as well as the following apply.

3.1.1
mounting orientation
circular mounting position of the connector in relation to the polarization of the mating interface

NOTE Where the free connector has an angled cable entry (as opposed to an in-line cable entry), the angle between the cable entry direction and the polarization keyway should be specified.

3.1.2
glass to metal seal
a form of construction whereby the connector contacts are housed in a glass insert which is inside a metal connector shell so as to form a connector with a hermetic seal which may be used to isolate differing environments

3.1.3
matched glass to metal seal
a form of construction whereby the thermal expansion characteristics of the glass, the metallic contacts, and the connector shell are similar and the seal between the glass and the metal is formed by a chemical bond

3.1.4
compression glass to metal seal
a form of construction whereby due to the its higher coefficient of expansion the shell contracts around the glass during the solidification phase of manufacture applying a compression force to the glass insert so as to form a seal

3.2 Recommended method of termination

3.2.1 General

The contact terminations shall be of the following types: screw, crimp, insulation piercing, insulation displacement, press-in or solder. For the male connectors having a glass to metal seal the recommended contact terminations are crimp, eyelet, solder, PCB and rounded.

NOTE 1 eyelet – the termination end is flattened and pierced with a hole to provide both mechanical retention of the wire as well as solder attachment.

NOTE 2 rounded – terminal post with rounded (domed) end.