

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**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRONIC EQUIPMENT –
PRODUCT REQUIREMENTS –****Part 2-101: Circular connectors –
Detail specification for M12 connectors with screw-locking**

FOREWORD

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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- Inclusion of the technical content of IEC PAS 61076-2-108, which will be withdrawn after publication of this International Standard.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

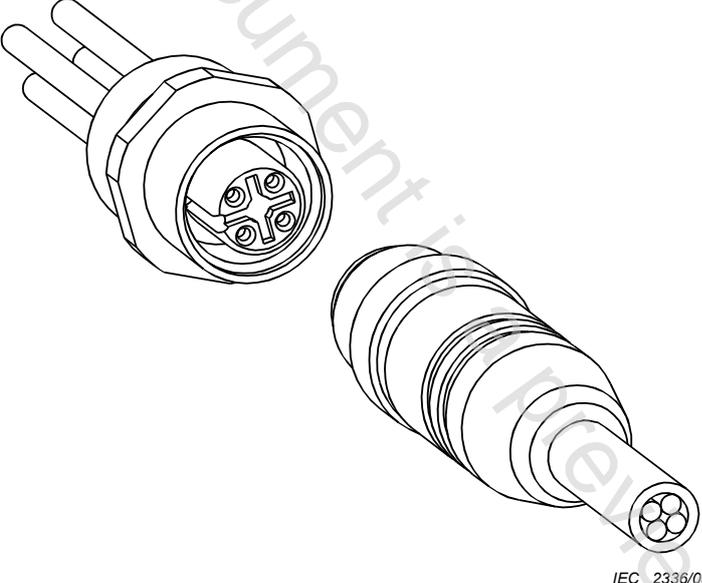
Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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.

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

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 rewirable or non-rewirable, with screw-locking. The connectors with glass to metal seal are fixed connectors only which consist of fixed glass to metal sealed styles with rewirable male contacts and are intermateable with corresponding free connectors according to this International Standard. Male connectors have round contacts \varnothing 0,6 mm, \varnothing 0,76 mm, \varnothing 0,8 mm and \varnothing 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 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.