

Connectors for electronic equipment - Product requirements - Part 2-109: Circular connectors - Detail specification for connectors with M 12 × 1 screw-locking, for data transmission frequencies up to 500 MHz

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English Version

Connectors for electronic equipment - Product requirements -
Part 2-109: Circular connectors - Detail specification for
connectors with M 12 × 1 screw-locking, for data transmission
frequencies up to 500 MHz
(IEC 61076-2-109:2014)

Connecteurs pour équipements électroniques - Exigences
de produit - Partie 2-109: Connecteurs circulaires -
Spécification particulière relative aux connecteurs avec
verrouillage à vis M 12 × 1, pour les transmissions de
données à des fréquences jusqu'à 500 MHz
(CEI 61076-2-109:2014)

Steckverbinder für elektronische Einrichtungen -
Produktanforderungen - Teil 2-109: Rundsteckverbinder -
Bauartspezifikation für Steckverbinder M 12 x 1 mit
Schraubverriegelung für Datenübertragungen bis 500 MHz
(IEC 61076-2-109:2014)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 48B/2369/FDIS, future edition 1 of IEC 61076-2-109, 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 61076-2-109:2014.

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) 2015-03-12
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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references	8
3 Technical information	9
3.1 Terms and definitions.....	9
3.2 Recommended method of termination	9
3.2.1 General	9
3.2.2 Number of contacts or contact cavities	9
3.3 Ratings and characteristics.....	9
3.4 Marking.....	10
3.5 Safety aspects	10
4 Dimensions	10
4.1 General.....	10
4.2 Survey of styles and variants	10
4.3 Interface dimensions for connectors.....	11
4.3.1 Interface dimensions for connector type X	11
4.3.2 Interface dimensions for connector type H	14
4.3.3 Pin front view of connectors and contact position.....	14
4.4 Gauges	15
4.4.1 Sizing gauges and retention force gauges	15
5 Characteristics	15
5.1 Climatic category	15
5.2 Electrical.....	15
5.2.1 Rated voltage – Rated impulse voltage – Pollution degree.....	15
5.2.2 Voltage proof.....	16
5.2.3 Current-carrying capacity.....	16
5.2.4 Contact resistance.....	16
5.2.5 Insulation resistance.....	16
5.3 Mechanical	16
5.3.1 IP degree of protection	16
5.3.2 Mechanical operation.....	16
5.3.3 Insertion and withdrawal forces	17
5.3.4 Contact retention in insert.....	17
5.3.5 Polarizing method.....	17
5.3.6 Vibration (sinusoidal).....	17
5.3.7 Shock	17
6 Test schedule.....	18
6.1 General.....	18
6.1.1 Introductory remarks.....	18
6.1.2 Arrangement for contact resistance measurements.....	18
6.1.3 Arrangement for dynamic stress tests (vibration)	19
6.2 Test schedule	20
6.2.1 Test group P – Preliminary	20
6.2.2 Test group AP – Dynamic/ climatic	21

6.2.3	Test group BP – Mechanical endurance.....	23
6.2.4	Test group CP – Electrical load	24
6.2.5	Test group DP – Chemical resistivity	25
6.2.6	Test group EP – Connection method tests	25
6.2.7	Test group FP – Electrical transmission requirements.....	25
Annex A (informative)	Contact and pair designation for balanced cabling.....	29
A.1	Recommendation for cable connection.....	29
Figure 1	– Interface dimensions for connectors type X with female contacts	11
Figure 2	– Interface dimensions for connectors type X with male contacts	12
Figure 3	– Interface dimensions for connectors type H with male contacts	14
Figure 4	– Gauge dimensions	15
Figure 5	– Contact resistance arrangement.....	19
Figure 6	– Dynamic stress test arrangement	19
Table 1	– Contact termination	9
Table 2	– Interface dimensions, connector type X with female contacts	12
Table 3	– Interface dimensions, connector type X with male contacts	13
Table 4	– Interface dimensions for connectors type H with male contacts	14
Table 5	– Gauges	15
Table 6	– Climatic category	15
Table 7	– Rated voltage – Impulse voltage – Pollution degree	16
Table 8	– Voltage proof, r.m.s. withstand voltages	16
Table 9	– Number of mechanical operations	17
Table 10	– Insertion and withdrawal forces	17
Table 11	– Number of test specimens	18
Table 12	– Test group P	20
Table 13	– Test group AP (1 of 2)	21
Table 14	– Test group BP	23
Table 15	– Test group CP	24
Table 16	– Test group DP	25
Table 17	– Test group EP	25
Table 18	– Test group FP (1 of 2)	27
Table A.1	– Example of contact and pair designation for balanced cabling (informative)	29

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning connector given in 4.3.2.

IEC takes no position concerning the evidence, validity and scope of this patent right.

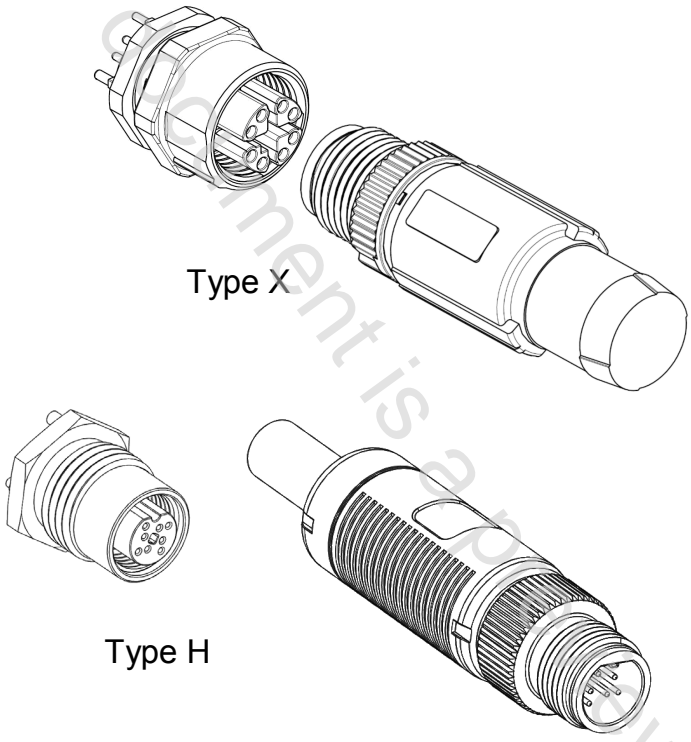
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<p>INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC SC 48B – Connectors</p>	<p>IEC 61076-2-109 Ed. 1.0</p>
<p>ELECTRONIC COMPONENTS in accordance with IEC 61076-1</p>	
 <p style="text-align: center;">Type X</p> <p style="text-align: center;">Type H</p> <p style="text-align: right;">IEC 1225/14</p>	<p>Circular connectors M12 × 1 mm 2 to 8 ways, for data transmission frequencies up to 500 MHz</p> <p>Pin and socket connectors with round contact</p> <p>Rewireable – Non-rewirable</p> <p>Free cable connectors Straight and right angle connectors</p> <p>Fixed connectors</p> <p>Flange mounting Rear mounting Single hole mounting</p>

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CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2-109: Circular connectors – Detail specification for connectors with M 12 x 1 screw-locking, for data transmission frequencies up to 500 MHz

1 Scope

This part of IEC 61076 describes circular connectors with IP 65/IP 67 degree of protection and suitable for data transmission with frequencies up to 500 MHz. Applications include, but are not limited to, vision systems and data acquisition. These connectors consist of fixed and free connectors, either rewirable or non-rewirable, with M12 x 1 screw-locking. Male connectors have round contacts \varnothing 0,6 mm.

This standard covers two different types of connectors, denominated X and H, with different contact arrangement, not mutually interchangeable, but with common ratings and purposes.

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 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-60:1995, *Environmental testing – Part 2: Tests – Test Ke: Flowing mixed gas corrosion test*

IEC 60352 (all parts), *Solderless connections*

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

IEC 60512-29-100: *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 (to be published)*

IEC 60529:1989, *Degrés de protection procurés par les enveloppes (Code IP)*

Amendement 2:2013

Amendement 1:1999

IEC 60603-7:2008, *Connectors for electronic equipment – Part 7: Detail specification for 8-way, unshielded, free and fixed connectors*

Amendment 1:2011

IEC 60603-7-1, *Connectors for electronic equipment – Part 7-1: Detail specification for 8-way, shielded, free and fixed connectors*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60998-2-1:2002, *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*

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

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

IEC 61076-2:2011, *Connectors for electronic equipment – Product requirements – Part 2: Sectional specification for circular connectors*

IEC 61076-2-101:2012, *Connectors for electronic equipment – Product requirements – Part 2-101: Circular connectors – Detail specification for M12 connectors with screw-locking*

IEC 61984:2008, *Connectors – Safety requirements and tests*

ISO 1302, *Geometrical Product Specifications (GPS) – Indication of surface texture in technical product documentation*

ISO 11801:2002, *Information technology – Generic cabling for customer premises*

3 Technical information

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-581 apply.

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.

3.2.2 Number of contacts or contact cavities

2 to 8 contacts and 8 cavities.

Table 1 – Contact termination

Connector type	Number of contacts	Typical. termination
X	2 to 8	0,14 mm ² to 0,25 mm ² ^{a)}
H	2 to 8	0,14 mm ² to 0,25 mm ² ^{a)}

^{a)} Corresponds to AWG 26 to 24.

3.3 Ratings and characteristics

Rated voltage: 50 V a.c. / 60 V d.c., see 5.2.1, Table 7

Rated Current: 0,5 A, see 5.2.3

Insulation resistance: 10⁸ Ω, see 5.2.5