SVENSK STANDARD SS-EN 61076-2-109

Fastställd	Utgåva	Sida	Ansvarig kommitté
2014-11-19	1	1 (1+32)	SEK TK 48B

Anslutningsdon för elektronikutrustning – Del 2-109: Detaljspecifikation för runda anslutningsdon med skruvfattning M12 × 1, dataöverföring med frekvenser upp till 500 MHz

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

Som svensk standard gäller europastandarden EN 61076-2-109:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61076-2-109:2014.

Nationellt förord

Europastandarden EN 61076-2-109:2014

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61076-2-109, First edition, 2014 - Connectors for electronic equipment - Product requirements - Part 2-109: Circular connectors - Detail specification for connectors with M 12 × 1 screw-locking, for data transmissions with frequencies up to 500 MHz**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 31.220.10

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61076-2-109

August 2014

ICS 31.220.10

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)

This European Standard was approved by CENELEC on 2014-06-12. 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.

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

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

Ref. No. EN 61076-2-109:2014 E

SEK Svensk Elstandard

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
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-06-12

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 61076-2-109:2014 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 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

Publication	Year	Title	EN/HD	Year
IEC 60050	Series	International Electrotechnical Vocabulary (IEV)	-	-
IEC 60068-1	2013	Environmental testing - Part 1: General and guidance	EN 60068-1	2014
IEC 60068-2-60	1995	Environmental testing - Part 2: Tests - Test Ke: Flowing mixed gas corrosion test	EN 60068-2-60	1996
IEC 60352	Series	Solderless connections	EN 60352	series
IEC 60512	Series	Connectors for electronic equipment - Tests and measurements	EN 60512-1	series
IEC 60512-29-100 [1)]	-	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	EN 60512-29-100 [1)]	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 corr. May	1991 1993
A1	1999		A1	2000
A2	2013		A2	2013
IEC 60603-7	2008	Connectors for electronic equipment - Part 7: Detail specification for 8-way, unshielded, free and fixed connectors	EN 60603-7	2009
A1	2011		A1	2011
IEC 60603-7-1	-	Connectors for electronic equipment - Part 7-1: Detail specification for 8-way, shielded, free and fixed connectors	EN 60603-7-1	-
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007

[1)] At draft stage.

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
IEC 60999	Series	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units	EN 60999	Series
IEC 61076-1	-	Connectors for electronic equipment - Product requirements - Part 1: Generic specification	EN 61076-1	-
IEC 61076-2	2011	Connectors for electronic equipment - Product requirements - Part 2: Sectional specification for circular connectors	EN 61076-2	2011
IEC 61076-2-101	2012	Connectors for electronic equipment - Product requirements - Part 2-101: Circular connectors - Detail specification for M12 connectors with screw-locking	EN 61076-2-101	2012
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	-
ISO/IEC 11801	2002	Information technology - Generic cabling for customer premises	-	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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

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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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.

International Standard IEC 61076-2-109 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This first edition of IEC 61076-2-109 cancels and relaces IEC PAS 61076-2-109, published in 2010.

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

FDIS	Report on voting
48B/2369/FDIS	48B/2382/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 61076 series, published under the general title *Connectors for electronic equipment – Product requirements*, 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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.

The holder of this patent right has assured the IEC that he/she is willing to negotiate licences free of charge with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from:

Tyco Electronics Corporation
Licensing Council, Tyco Electronics Technology Resources Inc.
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Wilmington, DE 19808
USA

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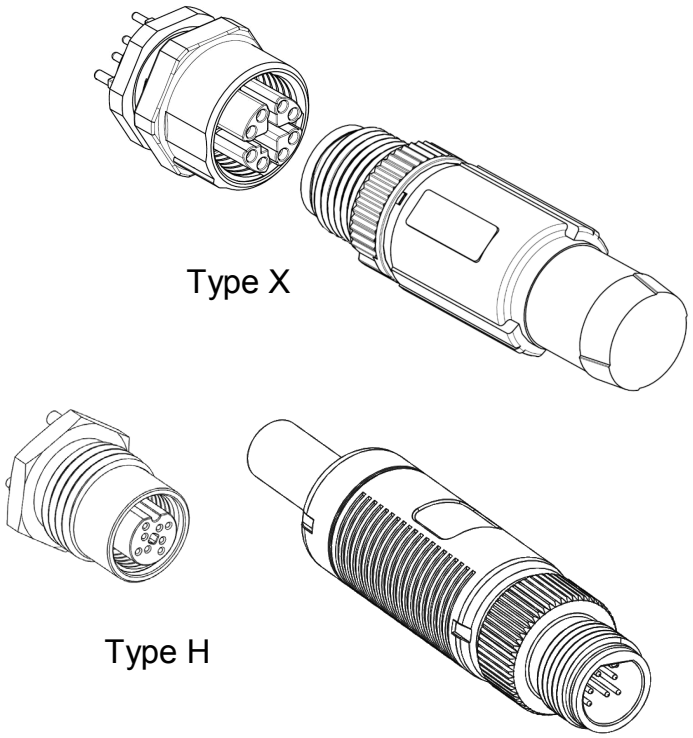
ISO (www.iso.org/patents) and IEC (http://patents.iec.ch) maintain on-line data bases of patents relevant to their standards. Users are encouraged to consult the data bases for the most up to date information concerning patents.

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

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 rewireable or non-rewireable, with M12 x 1 screw-locking. Male connectors have round contacts ∅ 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*