

<b>STN</b>	<b>Konektory pre elektrické a elektronické zariadenia Požiadavky na výrobok Časť 2-114: Kruhové konektory Podrobná špecifikácia na konektory so závitovým zaistením M8 s výkonovými a signálnymi kontaktmi na prenos dát s frekvenciou do 100 MHz</b>	<b>STN EN IEC 61076-2-114</b>  35 4621
------------	---	--

Connectors for electrical and electronic equipment - Product requirements - Part 2-114: Circular connectors - Detail specification for connectors with M8 screw-locking with power contacts and signal contacts for data transmission up to 100 MHz

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/20

Obsahuje: EN IEC 61076-2-114:2020, IEC 61076-2-114:2020

**132214**



EUROPEAN STANDARD

**EN IEC 61076-2-114**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2020

ICS 31.220.10

English Version

**Connectors for electrical and electronic equipment - Product requirements - Part 2-114: Circular connectors - Detail specification for connectors with M8 screw-locking with power contacts and signal contacts for data transmission up to 100 MHz  
(IEC 61076-2-114:2020)**

Connecteurs pour équipements électriques et électroniques  
- Exigences de produit - Partie 2-114: Connecteurs  
circulaires - Spécification particulière pour les connecteurs  
avec verrouillage à vis M8 avec contacts de puissance et  
contact de signaux pour transmission de données jusqu'à  
100 MHz  
(IEC 61076-2-114:2020)

Steckverbinder für elektrische und elektronische  
Einrichtungen - Produktanforderungen - Teil 2-114:  
Rundsteckverbinder - Bauartspezifikation für  
Steckverbinder M8 mit Schraubverriegelung mit Daten- und  
Leistungskontakten zur Datenübertragung bis 100 MHz  
(IEC 61076-2-114:2020)

This European Standard was approved by CENELEC on 2020-10-29. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, 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: Rue de la Science 23, B-1040 Brussels**

**EN IEC 61076-2-114:2020 (E)****European foreword**

The text of document 48B/2814/FDIS, future edition 1 of IEC 61076-2-114, prepared by SC 48B "Electrical connectors" of IEC/TC 48 "Electrical connectors and mechanical structures for electrical and electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61076-2-114:2020.

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) 2021-07-29
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-10-29

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

**Endorsement notice**

The text of the International Standard IEC 61076-2-114:2020 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 are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-581	-	International Electrotechnical Vocabulary - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60068-1	-	Basic environmental testing procedures - Part 1: General and guidance	-	-
IEC 60068-2-60	-	Environmental testing - Part 2-60: Tests - Test Ke: Flowing mixed gas corrosion test	EN 60068-2-60	-
IEC 60352	series	Solderless connections	EN 60352	series
IEC 60512-2-1	-	Connectors for electronic equipment - Tests and measurements - Part 2-1: Electrical continuity and contact resistance tests - Test 2a: Contact resistance - Millivolt level method	EN 60512-2-1	-
IEC 60512-3-1	-	Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests - Test 3a: Insulation resistance	EN 60512-3-1	-
IEC 60512-4-1	-	Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof	EN 60512-4-1	-
IEC 60512-5-2	-	Connectors for electronic equipment - Tests and measurements - Part 5-2: Current-carrying capacity tests - Test 5b: Current-temperature derating	EN 60512-5-2	-
IEC 60512-6-3	-	Connectors for electronic equipment - Tests and measurements - Part 6-3: Dynamic stress tests - Test 6c: Shock	EN 60512-6-3	-

**EN IEC 61076-2-114:2020 (E)**

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60512-6-4	-	Connectors for electronic equipment - Tests and measurements - Part 6-4: Dynamic stress tests - Test 6d: Vibration (sinusoidal)	EN 60512-6-4	-
IEC 60512-8-1	-	Connectors for electronic equipment - Tests and measurements - Part 8-1: Static load tests (fixed connectors) - Test 8a: Static load, transverse	EN 60512-8-1	-
IEC 60512-9-1	-	Connectors for electronic equipment - Tests and measurements - Part 9-1: Endurance tests - Test 9a: Mechanical operation	EN 60512-9-1	-
IEC 60512-12-2	-	Connectors for electronic equipment - Tests and measurements - Part 12-2: Soldering tests - Test 12b: Solderability, wetting, soldering iron method	EN 60512-12-2	-
IEC 60512-13-2	-	Connectors for electronic equipment - Tests and measurements - Part 13-2: Mechanical operation tests - Test 13b: Insertion and withdrawal forces	EN 60512-13-2	-
IEC 60512-13-5	-	Connectors for electronic equipment - Tests and measurements - Part 13-5: Mechanical operation tests - Test 13e: Polarizing and keying method	EN 60512-13-5	-
IEC 60512-15-6	-	Connectors for electronic equipment - Tests and measurements - Part 15-6: Connector tests (mechanical) - Test 15f: Effectiveness of connector coupling devices	EN 60512-15-6	-
IEC 60512-19-3	-	Electromechanical components for electronic equipment - Basic testing procedures and measuring methods - Part 19: Chemical resistance tests - Section 3: Test 19c - Fluid resistance	EN 60512-19-3	-
IEC 60512-25-7	2004	Connectors for electronic equipment - Tests and measurements - Part 25-7: Test 25g - Impedance, reflection coefficient, and voltage standing wave ratio (VSWR)	EN 60512-25-7	2005
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	EN 60512-29-100	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corrigendum	1993
IEC 60603-7	series	Connectors for electronic equipment - Part 7: Detail specification for 8-way, unshielded, free and fixed connectors	-	-

**EN IEC 61076-2-114:2020 (E)**

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60603-7	2008	Connectors for electronic equipment - Part 7: Detail specification for 8-way, unshielded, free and fixed connectors	EN 60603-7	2009
IEC 60603-7-1	2011	Connectors for electronic equipment - Part 7-1: Detail specification for 8-way, shielded, free and fixed connectors	EN 60603-7-1	2011
IEC 60664-1	-	Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 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 61131-2	-	Industrial-process measurement and control - Programmable controllers - Part 2: Equipment requirements and tests	-	-
IEC 61784-5	series	Industrial communication networks - Profiles	EN 61784-5	series
IEC 61784-5-12	-	Industrial communication networks - Profiles - Part 5-12: Installation of fieldbuses - Installation profiles for CPF 12	EN IEC 61784-5-12	-
IEC 61918	-	Industrial communication networks - Installation of communication networks in industrial premises	-	-
IEC 61984	-	Connectors - Safety requirements and tests	EN 61984	-
IEC 62197-1	-	Connectors for electronic equipment - Quality assessment requirements - Part 1: Generic specification	EN 62197-1	-
IEC 62430	-	Environmentally conscious design (ECD) - Principles, requirements and guidance	EN IEC 62430	-
IEC Guide 109	-	Environmental aspects - Inclusion in electrotechnical product standards	-	-
ISO/IEC TR 11801	series	Information technology - Generic cabling for customer premises	-	-

**EN IEC 61076-2-114:2020 (E)**

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 1302	-	Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation	EN ISO 1302	-
ISO 11469	-	Plastics - Generic identification and marking of plastics products	EN ISO 11469	-
TIA-568 SET	2019	Commercial building telecommunications cabling standard set	-	-





# IEC 61076-2-114

Edition 1.0 2020-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Connectors for electrical and electronic equipment – Product requirements – Part 2-114: Circular connectors – Detail specification for connectors with M8 screw-locking with power contacts and signal contacts for data transmission up to 100 MHz**

**Connecteurs pour équipements électriques et électroniques – Exigences de produit – Partie 2-114: Connecteurs circulaires – Spécification particulière pour les connecteurs avec verrouillage à vis M8 avec contacts de puissance et contact de signaux pour transmission de données jusqu'à 100 MHz**

**THIS PUBLICATION IS COPYRIGHT PROTECTED****Copyright © 2020 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

**About the IEC**

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

**About IEC publications**

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

**IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)**

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

**IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)**

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

**IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)**

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

**Electropedia - [www.electropedia.org](http://www.electropedia.org)**

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

**IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)**

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

**A propos de l'IEC**

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

**A propos des publications IEC**

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

**Recherche de publications IEC -****[webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)**

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

**IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)**

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

**Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)**

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

**Electropedia - [www.electropedia.org](http://www.electropedia.org)**

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

**Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)**

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.



IEC 61076-2-114

Edition 1.0 2020-07

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Connectors for electrical and electronic equipment – Product requirements – Part 2-114: Circular connectors – Detail specification for connectors with M8 screw-locking with power contacts and signal contacts for data transmission up to 100 MHz**

**Connecteurs pour équipements électriques et électroniques – Exigences de produit – Partie 2-114: Connecteurs circulaires – Spécification particulière pour les connecteurs avec verrouillage à vis M8 avec contacts de puissance et contact de signaux pour transmission de données jusqu'à 100 MHz**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 31.220.10

ISBN 978-2-8322-8654-8

**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

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references .....	9
3 Terms and definitions .....	11
4 Technical information .....	12
4.1 Systems of levels.....	12
4.1.1 Performance levels .....	12
4.1.2 Compatibility levels, according to IEC 61076-1 .....	12
4.2 Codings .....	12
4.3 Classification into climatic categories.....	12
4.4 Creepage and clearance distances .....	12
4.5 Current-carrying capacity.....	12
4.6 Marking.....	12
4.7 Characteristics.....	12
5 Dimensional information .....	12
5.1 General.....	12
5.2 Isometric view and common features .....	13
5.2.1 General .....	13
5.2.2 Common features .....	13
5.2.3 Reference system.....	13
5.3 Engagement (mating) information .....	13
5.3.1 Engaging (mating) direction .....	13
5.3.2 Contact levels and sequencing .....	14
5.3.3 Perpendicular to the engaging (mating) direction .....	14
5.3.4 Inclination.....	14
5.4 Fixed connectors .....	14
5.4.1 Dimensions.....	14
5.4.2 Terminations.....	15
5.5 Free connectors – Dimensions.....	16
5.5.1 General .....	16
5.5.2 Style JM .....	17
5.5.3 Style KM.....	17
5.5.4 Style LM .....	18
5.5.5 Style MM .....	18
5.5.6 Style JF .....	18
5.5.7 Style KF .....	19
5.5.8 Style LF .....	19
5.5.9 Style MF .....	20
5.5.10 Interface dimensions – Fixed connectors with D-coding .....	20
5.5.11 Interface dimensions – Fixed connectors with P-coding .....	21
5.5.12 Interface dimensions – Free connector with D-coding .....	22
5.5.13 Interface dimensions – Free connector with P-coding .....	23
5.6 Accessories .....	25
5.7 Mounting information for connectors – Mounting on panels .....	25
5.8 Gauges.....	25

5.8.1	Sizing gauges and retention force gauges .....	25
5.8.2	Mechanical function, engaging/separating/insertion/withdrawal force gauges .....	26
5.8.3	Probes .....	26
5.8.4	Contact resistance gauge .....	26
5.8.5	Test panel (for voltage proof test) .....	26
5.8.6	Test panel (for EMC/ crosstalk, etc.) .....	26
6	Characteristics .....	26
6.1	General .....	26
6.2	Pin assignment and other definitions .....	27
6.3	Classification into climatic categories .....	27
6.4	Electrical characteristics .....	27
6.4.1	Creepage and clearance distances .....	27
6.4.2	Voltage proof .....	27
6.4.3	Current-carrying capacity (Table 11) .....	28
6.4.4	Contact and shield resistance .....	28
6.4.5	Insulation resistance .....	28
6.4.6	Impedance .....	28
6.5	Mechanical characteristics .....	28
6.5.1	Mechanical operation .....	28
6.5.2	Effectiveness of connector coupling device .....	29
6.5.3	Engaging and separating forces (or insertion and withdrawal forces) .....	29
6.5.4	Contact retention in insert .....	29
6.5.5	Polarization and coding method .....	29
6.6	Other characteristics .....	30
6.6.1	Shock and vibration (method either random or sine) .....	30
6.6.2	Degree of protection provided by enclosures (IP code) .....	32
6.6.3	Screen and shielding properties .....	32
6.7	Environmental aspects .....	32
6.7.1	Marking of insulation material (plastics) .....	32
6.7.2	Design/ use of material .....	32
7	Test schedule .....	32
7.1	General .....	32
7.1.1	Overview .....	32
7.1.2	Climatic category .....	33
7.1.3	Creepage and clearance distances .....	33
7.1.4	Arrangement for contact resistance measurement .....	33
7.1.5	Arrangement for dynamic stress tests .....	34
7.1.6	Wiring of specimens .....	34
7.2	Test schedules .....	34
7.2.1	General .....	34
7.2.2	Basic (minimum) test schedule .....	34
7.2.3	Full test schedule .....	34
7.3	Test procedures and measuring methods .....	43
7.4	Pre-conditioning .....	43
7.5	Wiring and mounting of specimens .....	43
7.5.1	Wiring .....	43
7.5.2	Mounting .....	43
Annex A (normative) Contact and pair designation for balanced cabling with D-coding .....		44

Annex B (normative) Contact and pair designation for balanced cabling with P-coding.....	45
Figure 1 – Engagement (mating) information.....	13
Figure 2 – Fixed connector with wire ends, male contacts, single hole mounting.....	15
Figure 3 – Fixed connector with wire ends, female contacts, single hole mounting.....	15
Figure 4 – Cable outlet orientation of male and female angled versions KM, MM, KF, MF.....	16
Figure 5 – Rewireable connector, male contacts, straight version, with locking nut.....	17
Figure 6 – Rewireable connector, male contacts, angled version, with locking nut.....	17
Figure 7 – Non-rewireable connector, male contacts, straight version, with locking nut.....	18
Figure 8 – Non-rewireable connector, male contacts, angled version, with locking nut.....	18
Figure 9 – Rewireable connector, female contacts, straight version, with locking nut.....	18
Figure 10 – Rewireable connector, female contacts, angled version, with locking nut.....	19
Figure 11 – Non-rewireable connector, female contacts, straight version, with locking nut.....	19
Figure 12 – Non-rewireable connector, female contacts, angled version, with locking nut.....	20
Figure 13 – Fixed connector with D-coding.....	20
Figure 14 – Fixed connector with P-coding.....	21
Figure 15 – Free connector with D-coding.....	22
Figure 16 – Free connector with P-coding.....	24
Figure 17 – Gauge dimensions.....	26
Figure 18 – Dynamic stress test arrangement.....	31
Figure 19 – Contact resistance arrangement.....	34
Figure A.1 – Mating side contact arrangement for balanced cabling with D-coding.....	44
Figure B.1 – Mating side contact arrangement for balanced cabling with P-coding.....	45
Table 1 – Connectors dimensions in mated and locked position.....	14
Table 2 – Styles of fixed connectors.....	14
Table 3 – Styles of free connectors.....	16
Table 4 – Dimensions of fixed connector with D-coding.....	21
Table 5 – Dimensions of fixed connector with P-coding.....	22
Table 6 – Dimensions of free connector with D-coding.....	23
Table 7 – Dimensions of free connector with P-coding.....	25
Table 8 – Gauges.....	26
Table 9 – Ratings of connectors.....	27
Table 10 – Climatic category.....	27
Table 11 – Current-carrying capacity.....	28
Table 12 – Number of cycles of mechanical operations.....	29
Table 13 – Insertion and withdrawal forces.....	29
Table 14 – Insertion force.....	29
Table 15 – Rated voltage – Rated impulse voltage – Pollution degree.....	33
Table 16 – Voltage proof.....	33
Table 17 – Number of test specimens and contacts.....	34
Table 18 – Test group P.....	35
Table 19 – Test group AP.....	36

Table 20 – Test group BP .....	38
Table 21 – Test group CP .....	39
Table 22 – Test group DP .....	40
Table 23 – Test group GP .....	40
Table 24 – Test group MP .....	42
Table A.1 – Contact and pair designation for balanced cabling with D-coding .....	44
Table A.2 – Recommended applications for D-coded connectors .....	44
Table B.1 – Contact and pair designation for balanced cabling with P-coding .....	45
Table B.2 – Recommended applications for P-coded connectors .....	45

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –  
PRODUCT REQUIREMENTS –****Part 2-114: Circular connectors – Detail specification  
for connectors with M8 screw-locking with power contacts and  
signal contacts for data transmission up to 100 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.
- 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 61076-2-114 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment

The text of this International Standard is based on the following documents:

FDIS	Report on voting
48B/2814/FDIS	48B/2830/RVD

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



This first edition cancels and replaces IEC PAS 61076-2-114, published in 2016.

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

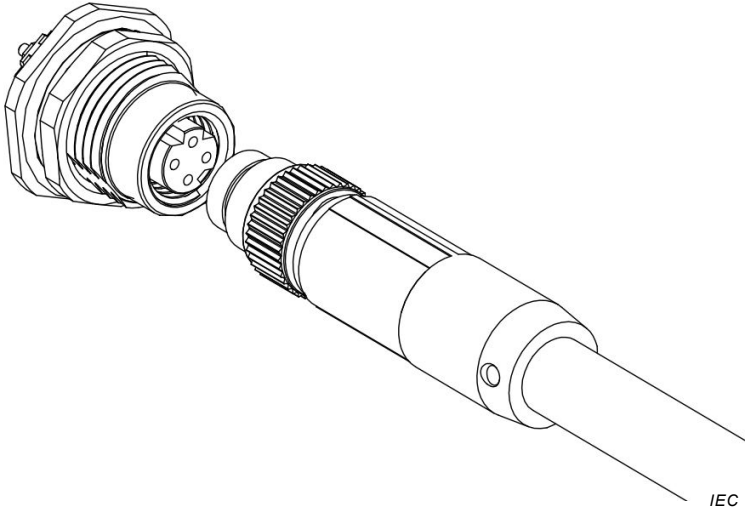
A list of all parts of IEC 61076 series, under the general title *Connectors for electrical and electronic equipment – Product requirements*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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

## INTRODUCTION

<p>IEC SC 48B – Electrical connectors</p> <p>Specification available from:</p> <p>IEC General secretariat</p> <p>or from the addresses shown on the inside cover.</p>	<p>IEC 61076-2-114 Ed. 1</p>
<p>DETAIL SPECIFICATION in accordance with IEC 61076-1</p>	
	<p>Circular connectors for data and power applications with M8 screw-locking and 4 ways</p> <p>Male and female connectors</p> <p>Male and female contacts</p> <p>Rewireable – Non-rewireable</p> <hr/> <p>Free cable connectors</p> <p>Straight and angled connectors</p> <p>Fixed connectors</p> <p>Flange mounting</p> <p>Single hole mounting</p>

## CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

### Part 2-114: Circular connectors – Detail specification for connectors with M8 screw-locking with power contacts and signal contacts for data transmission up to 100 MHz

#### 1 Scope

This part of IEC 61076 describes circular connectors with M8 screw locking typically used for data and power transmissions in industrial applications. These connectors consist of fixed and free connectors that are either rewirable or non-rewirable. Data transmission performance is for Category 5 up to 100 MHz.

Two coded versions, identified as D-coded and P-coded, are provided that differ by their pin size and optionally by number of poles, hence by the function provided for field applications.

Male connectors have round contacts  $\varnothing$  0,8 mm for D-coded, and  $\varnothing$  1 mm for P-coded connectors.

The coding provided by this document prevents the mating of accordingly coded male or female connectors to any other similarly sized interfaces covered by other standards.

NOTE M8 is the dimension of the thread of the screw-locking mechanism of these circular connectors.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *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 60512-2-1, *Connectors for electronic equipment – Tests and measurements – Part 2-1: Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method*

IEC 60512-3-1, *Connectors for electronic equipment – Tests and measurements – Part 3-1: Insulation tests – Test 3a: Insulation resistance*

IEC 60512-4-1, *Connectors for electronic equipment – Tests and measurements – Part 4-1: Voltage stress tests – Test 4a: Voltage proof*

IEC 60512-5-2, *Connectors for electronic equipment – Tests and measurements – Part 5-2: Current-carrying capacity tests – Test 5b: Current-temperature derating*

IEC 60512-6-3, *Connectors for electronic equipment – Tests and measurements – Part 6-3: Dynamic stress tests – Test 6c: Shock*

IEC 60512-6-4, *Connectors for electronic equipment – Tests and measurements – Part 6-4: Dynamic stress tests – Test 6d: Vibration (sinusoidal)*

IEC 60512-8-1, *Connectors for electronic equipment – Tests and measurements – Part 8-1: Static load tests (fixed connectors) – Test 8a: Static load, transverse*

IEC 60512-9-1, *Connectors for electronic equipment – Tests and measurements – Part 9-1: Endurance tests – Test 9a: Mechanical operation*

IEC 60512-12-2, *Connectors for electronic equipment – Tests and measurements – Part 12-2: Soldering tests – Test 12b: Solderability, wetting, soldering iron method*

IEC 60512-13-2, *Connectors for electronic equipment – Tests and measurements – Part 13-2: Mechanical operation tests – Test 13b: Insertion and withdrawal forces*

IEC 60512-13-5, *Connectors for electronic equipment – Tests and measurements – Part 13-5: Mechanical operation tests – Test 13e: Polarizing and keying method*

IEC 60512-15-6, *Connectors for electronic equipment – Tests and measurements – Part 15-6: Connector tests (mechanical) – Test 15f: Effectiveness of connector coupling devices*

IEC 60512-19-3, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 19: Chemical resistance tests – Section 3: Test 19c – Fluid resistance*

IEC 60512-25-7:2004, *Connectors for electronic equipment – Tests and measurements – Part 25-7: Test 25g – Impedance, reflection coefficient, and voltage standing wave ratio (VSWR)*

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*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

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

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

IEC 60603-7-1:2011, *Connectors for electronic equipment – Part 7-1: Detail specification for 8-way, shielded, free and fixed connectors*

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 61076-2-114:2020 © IEC 2020 – 11 –

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 61131-2, *Industrial-process measurement and control – Programmable controllers – Part 2: Equipment requirements and tests*

IEC 61784-5 (all parts), *Industrial communication networks – Profiles*

IEC 61784-5-12, *Industrial communication networks – Profiles – Part 5-12: Installation of fieldbuses – Installation profiles for CPF 12*

IEC 61918, *Industrial communication networks – Installation of communication networks in industrial premises*

IEC 61984, *Connectors – Safety requirements and tests*

IEC 62197-1, *Connectors for electronic equipment – Quality assessment requirements – Part 1: Generic specification*

IEC 62430, *Environmentally conscious design (ECD) – Principles, requirements and guidance*

IEC Guide 109, *Environmental aspects – Inclusion in electrotechnical product standards*

ISO/IEC TR 11801 (all parts), *Information technology – Generic cabling for customer premises*

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

ISO 11469, *Plastics – Generic identification and marking of plastic products*

TIA-568 SET 2019, *Commercial building telecommunications cabling standard set*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**