

Connectors for electrical and electronic equipment -  
Product Requirements - Part 2-012: Circular connectors  
- Detail specification for connectors with inner  
push-pull locking based on M12 connector interfaces  
according to IEC 61076-2-101, IEC 61076-2-109, IEC  
61076-2-111 and IEC 61076-2-113

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 61076-2-012:2020 sisaldab Euroopa standardi EN IEC 61076-2-012:2020 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61076-2-012:2020 consists of the English text of the European standard EN IEC 61076-2-012:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 11.09.2020.	Date of Availability of the European standard is 11.09.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 31.220.10

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

ICS 31.220.10

English Version

Connectors for electrical and electronic equipment - Product Requirements - Part 2-012: Circular connectors - Detail specification for connectors with inner push-pull locking based on M12 connector interfaces according to IEC 61076-2-101, IEC 61076-2-109, IEC 61076-2-111 and IEC 61076-2-113 (IEC 61076-2-012:2020)

Connecteurs pour équipements électriques et électroniques  
- Exigences de produit - Partie 2-012 : Connecteurs  
circulaires - Spécification particulière relative aux  
connecteurs avec verrouillage interne de type pousser-tirer  
fondée sur les interfaces de connecteur M12 conformément  
à l'IEC 61076-2-101, l'IEC 61076-2-109, l'IEC 61076-2-111  
et l'IEC 61076-2-113  
(IEC 61076-2-012:2020)

Steckverbinder für elektrische und elektronische  
Einrichtungen - Produktanforderungen - Teil 2-012:  
Rundsteckverbinder - Bauartspezifikation für  
Steckverbinder mit innerer Push-pull-Verriegelung auf Basis  
Steckverbindern mit Schraubverriegelungen M12 nach IEC  
61076-101, IEC 61076-109, IEC 61076-111 und IEC  
61076-113  
(IEC 61076-2-012:2020)

This European Standard was approved by CENELEC on 2020-08-31. 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

## European foreword

The text of document 48B/2813/FDIS, future edition 1 of IEC 61076-2-012, 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 61076-2-012:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2021-05-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2023-08-31 document have to be withdrawn

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 61076-2-012:2020 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	2008	International Electrotechnical Vocabulary -- Part 581: Electromechanical components for electronic equipment		-
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
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 60512-5-1	-	Connectors for electronic equipment Tests and measurements - Part 5-1: Current-carrying capacity tests - Test 5a: Temperature rise	EN 60512-5-1	-
IEC 60512-6-3	-	Connectors for electronic equipment Tests and measurements - Part 6-3: Dynamic stress tests - Test 6c: Shock	EN 60512-6-3	-
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 60512-9-1	-	Connectors for electronic equipment Tests and measurements - Part 9-1: Endurance tests - Test 9a: Mechanical operation	EN 60512-9-1	-

IEC 60512-13-1	-	Connectors for electronic equipment -EN 60512-13-1 Tests and measurements - Part 13-1: Mechanical operation tests - Test 13a: Engaging and separating forces	-
IEC 60512-13-2	-	Connectors for electronic equipment -EN 60512-13-2 Tests and measurements - Part 13-2: Mechanical operation tests - Test 13b: Insertion and withdrawal forces	-
IEC 60512-13-5	-	Connectors for electronic equipment -EN 60512-13-5 Tests and measurements - Part 13-5: Mechanical operation tests - Test 13e: Polarizing and keying method	-
IEC 60512-15-6	-	Connectors for electronic equipment -EN 60512-15-6 Tests and measurements - Part 15-6: Connector tests (mechanical) - Test 15f: Effectiveness of connector coupling devices	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 1991
-	-		+ corrigendum May 1993
+ A1	1999		+ A1 2000
+ A2	2013		+ A2 2013
IEC 60664-1	-	Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 60664-1 -
IEC 60998-2-12002 (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 61076-1	2006	Connectors for electronic equipment - Product requirements - Part 1: Generic specification	EN 61076-1 2006
IEC 61076-2-010	-	Connectors for electrical and electronic- equipment - Product requirements - Part 2- 010: Circular connectors - Detail specification for push pull connectors with outer locking mechanism, based on mating interfaces according to IEC 61076-2-101, IEC 61076-2-109, IEC 61076-2-111 and IEC 61076-2-113	-
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 61076-2-109	2014	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	EN 61076-2-109 2014

IEC 61076-2-111	2017	Connectors for electrical and electronic equipment - Product requirements - Part 2-111 111: Circular connectors - Detail specification for power connectors with M12 screw-locking	EN IEC 61076-2-2018
IEC 61076-2-113	2017	Connectors for electronic equipment - Product requirements - Part 2-113: Circular connectors - Detail specification for connectors with M12 screw locking with power and signal contacts for data transmission with frequency up to 100 MHz	EN 61076-2-113 2017
IEC 61984	-	Connectors - Safety requirements and tests	EN 61984 -

This document is a preview generated by EVS

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Connectors for electrical and electronic equipment – Product requirements – Part 2-012: Circular connectors – Detail specification for connectors with inner push-pull locking based on M12 connector interfaces according to IEC 61076-2-101, IEC 61076-2-109, IEC 61076-2-111 and IEC 61076-2-113**

**Connecteurs pour équipements électriques et électroniques – Exigences de produit – Partie 2-012: Connecteurs circulaires – Spécification particulière relative aux connecteurs avec verrouillage interne de type pousser-tirer fondée sur les interfaces de connecteur M12 conformément à l'IEC 61076-2-101, l'IEC 61076-2-109, l'IEC 61076-2-111 et l'IEC 61076-2-113**



## 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.

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Connectors for electrical and electronic equipment – Product requirements – Part 2-012: Circular connectors – Detail specification for connectors with inner push-pull locking based on M12 connector interfaces according to IEC 61076-2-101, IEC 61076-2-109, IEC 61076-2-111 and IEC 61076-2-113**

**Connecteurs pour équipements électriques et électroniques – Exigences de produit – Partie 2-012: Connecteurs circulaires – Spécification particulière relative aux connecteurs avec verrouillage interne de type pousser-tirer fondée sur les interfaces de connecteur M12 conformément à l'IEC 61076-2-101, l'IEC 61076-2-109, l'IEC 61076-2-111 et l'IEC 61076-2-113**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 31.220.10

ISBN 978-2-8322-8643-2

**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

FOREWORD.....	7
1 Scope.....	10
2 Normative references .....	10
3 Terms and definitions .....	12
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 .....	13
4.2 Classification into climatic categories.....	13
4.3 Contact terminations .....	13
4.4 Available connector codings.....	14
4.5 Ratings .....	15
4.6 Marking.....	15
4.7 Safety aspects .....	15
5 Dimensional information .....	15
5.1 General.....	15
5.2 Survey of styles and variants .....	15
5.2.1 General .....	15
5.2.2 Fixed connectors .....	15
5.2.3 Free connectors.....	21
5.3 Interface dimensions.....	34
5.3.1 Push-pull housing .....	34
5.3.2 A-coding .....	38
5.3.3 B-coding .....	39
5.3.4 C-coding.....	40
5.3.5 D-coding.....	41
5.3.6 P-coding .....	42
5.3.7 H-coding.....	43
5.3.8 X-coding .....	44
5.3.9 K-coding .....	45
5.3.10 L-coding .....	46
5.3.11 M-coding .....	47
5.3.12 S-coding .....	48
5.3.13 T-coding .....	49
5.3.14 Type 1-coding.....	50
5.3.15 Type 2-coding.....	51
5.3.16 Type 3-coding.....	52
5.3.17 Type 4-coding.....	53
5.4 Gauges – Sizing gauges and retention force gauges .....	54
6 Characteristics .....	54
6.1 Classification into climatic category .....	54
6.2 Electrical characteristics .....	54
6.2.1 Voltage proof.....	54
6.2.2 Rated voltage – Rated impulse voltage – Pollution degree .....	55
6.2.3 Current-carrying capacity.....	55
6.2.4 Contact resistance .....	55

6.2.5	Insulation resistance.....	55
6.2.6	Transmission performance.....	55
6.3	Mechanical characteristics.....	55
6.3.1	Mating Interface.....	55
6.3.2	Push-pull locking mechanism.....	56
6.4	Other characteristics.....	57
6.4.1	Vibration (sinusoidal).....	57
6.4.2	Shock.....	57
6.4.3	Degree of protection provided by enclosures (IP code).....	57
7	Test schedule.....	57
7.1	General.....	57
7.2	Test schedule.....	58
7.2.1	Test group P – Preliminary.....	58
7.2.2	Test group AP – Dynamic/Climatic.....	58
7.2.3	Test group BP – Mechanical endurance.....	58
7.2.4	Test group CP – Electrical load.....	59
7.2.5	Test group DP – Chemical resistivity.....	59
7.2.6	Test group EP – Connection method tests.....	59
7.2.7	Test group FP – Electrical transmission requirements.....	59
Annex A (normative) Inner diameter of the male push-pull connector body.....		60
Figure 1 – Style EF_M12_PPI – Fixed connector, female contacts, with inner push-pull and screw locking, mounting with thread M12 × 1, with wire/cable ends, single hole mounting thread M16 × 1,5.....		16
Figure 2 – Style FF_M12_PPI – Fixed connector, female contacts, with inner push-pull and screw locking, mounting with thread M12 × 1, with wire/cable ends, single hole mounting thread M20 × 1,5.....		17
Figure 3 – Style GF_M12_PPI – Fixed connector, female contacts, with inner push-pull and screw locking, mounting with thread M12 × 1, with wire/cable ends, single hole mounting thread M16 × 1,5, mounting orientation.....		18
Figure 4 – Style HF_M12_PPI – Fixed connector, female contacts, with inner push-pull and screw locking, mounting with thread M12 × 1, with wire/cable ends, single hole mounting thread M20 × 1,5, mounting orientation.....		19
Figure 5 – Style IF_M12_PPI – Fixed connector, female contacts, with inner push-pull and screw locking, mounting with thread M12 × 1, with wire/cable ends, single hole mounting thread M17 × 1,0, rear orientation.....		20
Figure 6 – Style JM_PPI – Rewirable connector, male contacts, straight version, with inner push-pull locking.....		22
Figure 7 – Style KM_PPI – Rewirable connector, male contacts, right-angled version, with inner push-pull locking.....		23
Figure 8 – Style LM_PPI – Non-rewirable connector, male contacts, straight version, with inner push-pull locking.....		24
Figure 9 – Style MM_PPI – Non-rewirable connector, male contacts, right-angled version, with inner push-pull locking.....		24
Figure 10 – Style NM_PPI – Non-rewirable connector, male contacts, right angled higher version, with inner push-pull locking.....		25
Figure 11 – Style JF_M12_PPI – Rewireable connector, with female contacts, straight version, with inner push-pull and screw locking.....		26
Figure 12 – Style KF_M12_PPI – Rewireable connector, with female contacts, right-angled version, with inner push-pull and screw locking.....		26

Figure 13 – Style LF_M12_PPI – Non-rewireable connector, with female contacts, straight version, with inner push-pull and screw locking .....	27
Figure 14 – Style MF_M12_PPI – Non-rewireable connector, with female contacts, right-angled version, with inner push-pull and screw locking .....	28
Figure 15 – Style NF_M12_PPI – Non-rewireable connector, female contacts, right angled higher version, with inner push-pull and screw locking.....	29
Figure 16 – Style JF_PPI_PPO – Rewireable connector, with female contacts, straight version, with inner and outer push-pull locking.....	30
Figure 17 – Style KF_PPI_PPO – Rewireable connector, with female contacts, right-angled version, with inner and outer push-pull locking .....	30
Figure 18 – Style LF_PPI_PPO – Non-rewireable connector, with female contacts, straight version, with inner and outer push-pull locking .....	31
Figure 19 – Style MF_PPI_PPO – Non-rewireable connector, with female contacts, right-angled version, with inner and outer push-pull locking .....	32
Figure 20 – Style NF_PPI_PPO – Non-rewireable connector, female contacts, right angled higher version, with inner and outer push-pull locking.....	33
Figure 21 – Front view of the female side of the push-pull housing using the example of an A-coded connector .....	34
Figure 22 – Side view of the female side of the push-pull housing using the example of an A-coded connector .....	35
Figure 23 – Front view of the male side of the push-pull housing using the example of a D-coded connector.....	37
Figure 24 – Side view of the male side of the push-pull housing using the example of a D-coded connector.....	37
Figure 25 – Front view of the female side of the push-pull housing for A-coding.....	38
Figure 26 – Side view of the female side of the push-pull housing for A-coding.....	39
Figure 27 – Front view of the female side of the push-pull housing for B-coding.....	39
Figure 28 – Side view of the female side of the push-pull housing for B-coding.....	40
Figure 29 – Front view of the female side of the push-pull housing for C-coding .....	40
Figure 30 – Side view of the female side of the push-pull housing for C-coding.....	41
Figure 31 – Front view of the female side of the push-pull housing for D-coding .....	41
Figure 32 – Side view of the female side of the push-pull housing for D-coding.....	42
Figure 33 – Front view of the female side of the push-pull housing for P-coding.....	42
Figure 34 – Side view of the female side of the push-pull housing for P-coding.....	43
Figure 35 – Front view of the female side of the push-pull housing for H-coding .....	43
Figure 36 – Side view of the female side of the push-pull housing for H-coding.....	44
Figure 37 – Front view of the female side of the push-pull housing for X-coding.....	44
Figure 38 – Side view of the female side of the push-pull housing for X-coding.....	45
Figure 39 – Front view of the female side of the push-pull housing for K-coding.....	45
Figure 40 – Side view of the female side of the push-pull housing for K-coding.....	46
Figure 41 – Front view of the female side of the push-pull housing for L-coding .....	46
Figure 42 – Side view of the female side of the push-pull housing for L-coding .....	47
Figure 43 – Front view of the female side of the push-pull housing for M-coding .....	47
Figure 44 – Side view of the female side of the push-pull housing for M-coding .....	48
Figure 45 – Front view of the female side of the push-pull housing for S-coding.....	48
Figure 46 – Side view of the female side of the push-pull housing for S-coding.....	49

Figure 47 – Front view of the female side of the push-pull housing for T-coding.....	49
Figure 48 – Side view of the female side of the push-pull housing for T-coding.....	50
Figure 49 – Front view of the female side of the push-pull housing for Type 1.....	50
Figure 50 – Side view of the female side of the push-pull housing for Type 1.....	51
Figure 51 – Front view of the female side of the push-pull housing for Type 2.....	51
Figure 52 – Side view of the female side of the push-pull housing for Type 2.....	52
Figure 53 – Front view of the female side of the push-pull housing for Type 3.....	52
Figure 54 – Side view of the female side of the push-pull housing for Type 3.....	53
Figure 55 – Front view of the female side of the push-pull housing for Type 4.....	53
Figure 56 – Side view of the female side of the push-pull housing for Type 4.....	54
Figure A.1 – Inner diameter of the free male connector body .....	60
Table 1 – Available connector codings.....	14
Table 2 – Styles of fixed connectors .....	16
Table 3 – Dimensions of style EF_M12_PPI, Figure 1.....	17
Table 4 – Dimensions of style FF_M12_PPI, Figure 2.....	17
Table 5 – Dimensions of style GF_M12_PPI, Figure 3.....	18
Table 6 – Dimensions of style HF_M12_PPI, Figure 4.....	19
Table 7 – Dimensions of style IF_M12_PPI, Figure 5 .....	20
Table 8 – Styles of free connectors.....	21
Table 9 – Dimensions of style JM_PPI, Figure 6 .....	22
Table 10 – Dimensions of style KM_PPI, Figure 7.....	23
Table 11 – Dimensions of style LM_PPI, Figure 8.....	24
Table 12 – Dimensions of style MM_PPI, Figure 9 .....	25
Table 13 – Dimensions of style NM_PPI, Figure 10.....	25
Table 14 – Dimensions of style JF_M12_PPI, Figure 11.....	26
Table 15 – Dimensions of style KF_M12_PPI, Figure 12.....	27
Table 16 – Dimensions of style LF_M12_PPI, Figure 13 .....	27
Table 17 – Dimensions of style MF_M12_PPI, Figure 14.....	28
Table 18 – Dimensions of style NF_M12_PPI, Figure 15.....	29
Table 19 – Dimensions of style JF_PPI_PPO, Figure 16.....	30
Table 20 – Dimensions of style KF_PPI_PPO, Figure 17.....	31
Table 21 – Dimensions of style LF_PPI_PPO, Figure 18.....	31
Table 22 – Dimensions of style MF_PPI_PPO, Figure 19.....	32
Table 23 – Dimensions of style NF_PPI_PPO, Figure 20 .....	33
Table 24 – Dimensions of the push-pull housing (female side).....	36
Table 25 – Dimensions of the push-pull housing (male side).....	38
Table 26 – Dimensions of the push-pull housing specific to A-coding.....	39
Table 27 – Dimensions of the push-pull housing specific to B-coding.....	40
Table 28 – Dimensions of the push-pull housing specific to C-coding.....	41
Table 29 – Dimensions of the push-pull housing specific to D-coding.....	42
Table 30 – Dimensions of the push-pull housing specific to P-coding.....	43
Table 31 – Dimensions of the push-pull housing specific to H-coding.....	44

Table 32 – Dimensions of the push-pull housing specific to X-coding .....	45
Table 33 – Dimensions of the push-pull housing specific to K-coding .....	46
Table 34 – Dimensions of the push-pull housing specific to L-coding .....	47
Table 35 – Dimensions of the push-pull housing specific to M-coding .....	48
Table 36 – Dimensions of the push-pull housing specific to S-coding .....	49
Table 37 – Dimensions of the push-pull housing specific to T-coding .....	50
Table 38 – Dimensions of the push-pull housing specific to Type 1 .....	51
Table 39 – Dimensions of the push-pull housing specific to Type 2 .....	52
Table 40 – Dimensions of the push-pull housing specific to Type 3 .....	53
Table 41 – Dimensions of the push-pull housing specific to Type 4 .....	54
Table 42 – Insertion and withdrawal forces for the locking mechanism .....	57
Table 43 – Number of test specimens .....	58
Table 44 – Test group BP .....	59
Table A.1 – Inner diameter of the body of the free male connector, dimension X .....	60

This document is a preview generated by EVS

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –  
PRODUCT REQUIREMENTS –**
**Part 2-012: Circular connectors – Detail specification for connectors with  
inner push-pull locking based on M12 connector interfaces according to  
IEC 61076-2-101, IEC 61076-2-109, IEC 61076-2-111 and IEC 61076-2-113**

## 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 61076-2-012 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/2813/FDIS	48B/2831/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 document has been drafted in accordance with the ISO/IEC Directives, Part 2.

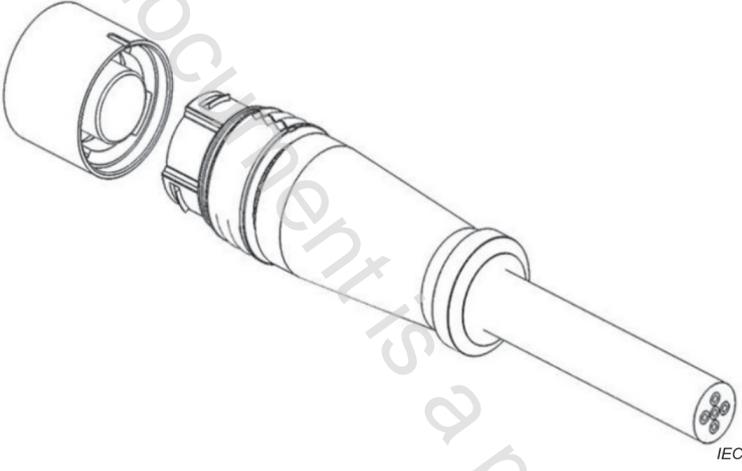
A list of all parts in the IEC 61076 series, published under the general title *Connectors for electrical and electronic equipment – Product requirements*, can be found on the IEC website.

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.

This document is a preview generated by EVS

<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 61076-2-012 Ed.1</p>
<p>Detail specification in accordance with IEC 61076-1</p>	
	<p>Circular M12 inner push-pull connectors for power and/or signal and/or data transmission</p> <p>Fixed connectors with female contacts and inner push-pull mechanism, mateable with plugs with inner push-pull locking or M12 screw locking</p> <p>Free cable connectors with male contacts and inner push-pull locking</p> <p>Two types of free cable connectors with female contacts, with inner push-pull mechanism and either M12 screw or outer push-pull mechanism according to IEC 61076-2-010</p> <p>Rewirable – Non-rewirable</p> <p>Fixed connectors, with rear or single hole (front) mounting</p> <p>Straight and right-angled free cable connectors</p>

This document is a preview generated by EVS