

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Connectors for electrical and electronic equipment – Product requirements – Part 8-101: Power connectors – Detail specification for 2-pole or 3-pole power plus 2-pole signal shielded and sealed connectors with plastic housing for rated current of 40 A

Connecteurs pour équipements électriques et électroniques – Exigences de produit –

Partie 8-101: Connecteurs électriques – Spécification particulière pour connecteurs blindés étanches à 2 pôles ou 3 pôles pour la transmission de puissance et à 2 pôles pour la transmission de données avec boîtier plastique pour courant assigné de 40 A



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
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

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

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

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

Electropedia - 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

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

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

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

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

Electropedia - 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

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 8-101: Power connectors – Detail specification for 2-pole or 3-pole power plus 2-pole signal shielded and sealed connectors with plastic housing for rated current of 40 A

Connecteurs pour équipements électriques et électroniques – Exigences de produit – Partie 8-101: Connecteurs électriques – Spécification particulière pour connecteurs blindés étanches à 2 pôles ou 3 pôles pour la transmission de puissance et à 2 pôles pour la transmission de données avec boîtier plastique pour courant assigné de 40 A

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 31.220.10

ISBN 978-2-8322-8041-6

**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.....	5
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	11
4 Technical information	11
4.1 Recommended method of termination	11
4.1.1 General	11
4.1.2 Number of contacts and contact cavities.....	11
4.2 Ratings and characteristics	11
4.3 Systems of levels.....	11
4.3.1 Performance levels	11
4.3.2 Compatibility levels.....	12
4.4 Classification into climatic categories.....	12
4.5 Clearance and creepage distance	12
4.6 Current-carrying capacity	12
4.7 Marking.....	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 Isometric view of free connectors.....	13
5.2.3 Isometric view of fixed connectors	13
5.3 Engagement (mating) information	13
5.3.1 Engagement (mating) direction.....	13
5.3.2 Perpendicular to the engaging (mating) direction	13
5.3.3 Inclination.....	13
5.4 Fixed connectors	14
5.4.1 General	14
5.4.2 Dimensions	14
5.4.3 Terminations.....	17
5.5 Free connectors.....	17
5.5.1 General	17
5.5.2 Dimensions.....	18
5.5.3 Terminations.....	21
5.6 Accessories	21
5.7 Mounting information for connectors	21
5.8 Gauges – Sizing gauges and retention force gauges.....	21
6 Technical characteristics	22
6.1 Classification into climatic categories.....	22
6.2 Electrical characteristics	22
6.2.1 Clearance and creepage distance.....	22
6.2.2 Voltage proof.....	22
6.2.3 Contact resistance	23
6.2.4 Housing (shell) electrical continuity.....	23
6.2.5 Insulation resistance.....	23
6.2.6 Temperature rise	24

6.2.7	Electrical load and temperature	24
6.3	Mechanical characteristics	24
6.3.1	Mechanical operation.....	24
6.3.2	Effectiveness of connector coupling devices	24
6.3.3	Gauge retention force (resilient contact)	25
6.3.4	Engaging and separating forces.....	25
6.3.5	Contact retention in insert.....	25
6.3.6	Polarizing and keying method	25
6.4	Dynamic stress test.....	25
6.4.1	Vibration (sine).....	25
6.4.2	Shock	26
6.4.3	Free fall (repeated).....	26
6.4.4	IP degree of protection	26
6.4.5	Glow-wire flammability test method for end-products (GWEPT)	26
6.5	Climatic test.....	26
6.5.1	Damp heat, steady state.....	26
6.5.2	Rapid change of temperature.....	27
6.5.3	Corrosion, salt mist.....	27
6.5.4	Dry heat	27
6.5.5	Cold.....	27
6.5.6	Low air pressure	27
6.6	Environmental aspects.....	27
6.6.1	Marking of insulation material (plastic).....	27
6.6.2	Design/use of material	28
7	Test schedule	28
7.1	General.....	28
7.2	Test schedules.....	28
7.2.1	Basic (minimum) test procedure	28
7.2.2	Full test schedule	28
7.3	Test procedures and measurement methods.....	38
7.4	Pre-conditioning.....	38
7.5	Wiring and mounting of test specimens	38
7.5.1	Wiring	38
7.5.2	Mounting	38
	Figure 1 – 2-pole and 3-pole free connector.....	13
	Figure 2 – 2-pole and 3-pole fixed connector	13
	Figure 3 – 2-pole 40 A fixed connector.....	14
	Figure 4 – 3-pole 40 A fixed connector.....	15
	Figure 5 – Fixed connector codings	16
	Figure 6 – 2-pole 40 A free connector	18
	Figure 7 – 3-pole 40 A free connector	19
	Figure 8 – Free connector codings.....	20
	Figure 9 – Gauge for signal contact	21
	Figure 10 – Gauge for power contact	22
	Table 1 – Climatic categories.....	12

Table 2 – 2-pole 40 A fixed connector dimensions	14
Table 3 – 3-pole 40 A fixed connector dimensions	15
Table 4 – Fixed connector codings dimensions	17
Table 5 – 2-pole 40 A free connector dimensions.....	18
Table 6 – 3-pole 40 A free connector dimensions.....	19
Table 7 – Free connector codings dimensions	21
Table 8 – Gauge dimensions.....	22
Table 9 – Voltage proof.....	23
Table 10 – Vibration.....	26
Table 11 – Number of test specimens	27
Table 12 – Test group P	29
Table 13 – Test group AP	30
Table 14 – Test group BP	31
Table 15 – Test group CP	33
Table 16 – Test group DP	34
Table 17 – Test group EP	35
Table 18 – Test group GP	36
Table 19 – Test group JP	36
Table 20 – Test group KP	37

Currently in preview, click buy full version

INTERNATIONAL ELECTROTECHNICAL COMMISSION

—————

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –
PRODUCT REQUIREMENTS –**
**Part 8-101: Power connectors – Detail specification for 2-pole or 3-pole
power plus 2-pole signal shielded and sealed connectors with plastic
housing for rated current of 40 A**

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 expressed, as early 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 61076-8-101 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 standard is based on the following documents:

FDIS	Report on voting
48B/2784/FDIS	48B/2801/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.

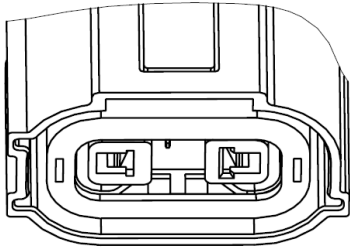
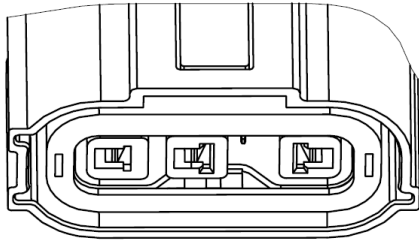
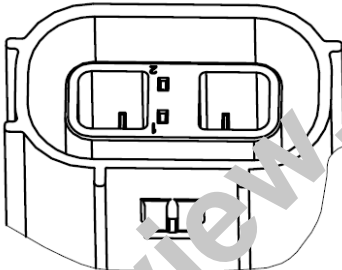

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61076 series, published under the general title *Connectors for 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 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.

The International Electrotechnical Commission IEC SC 48B—Electrical connectors		IEC 61076-8-101 Ed. 1
Detail specification in accordance with IEC 61076-1		
Free connector	 <p>2-pole 40 A free connector</p>	<p>For rated current of 40 A d.c.;</p> <p>2-pole;</p> <p>Female contact for power;</p> <p>First break last make male signal contact;</p> <p>Straight insertion and withdrawal;</p> <p>360° shielding;</p> <p>Four codings.</p>
	 <p>3-pole 40 A free connector</p>	<p>For rated current of 40 A a.c.;</p> <p>3-pole;</p> <p>Female contact for power;</p> <p>First break last make male signal contact;</p> <p>Straight insertion and withdrawal;</p> <p>360° shielding;</p> <p>Four codings.</p>
Fixed connector	 <p>2-pole 40 A fixed connector</p>	<p>For rated current of 40 A d.c.;</p> <p>2-pole;</p> <p>Female contact for signal;</p> <p>Male contact for power;</p> <p>Straight insertion and withdrawal;</p> <p>360° shielding;</p> <p>Four codings.</p>
	 <p>3-pole 40 A fixed connector</p>	<p>For rated current of 40 A a.c.;</p> <p>3-pole;</p> <p>Female contact for signal;</p> <p>Male contact for power;</p> <p>Straight insertion and withdrawal;</p> <p>360° shielding;</p> <p>Four codings.</p>

CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 8-101: Power connectors – Detail specification for 2-pole or 3-pole power plus 2-pole signal shielded and sealed connectors with plastic housing for rated current of 40 A

1 Scope

This part of IEC 61076 describes 2-pole or 3-pole power plus 2-pole signal shielded and sealed connectors with plastic housing (hereinafter referred to as a connector) for electrical and electronic equipment, including overall dimensions, interface dimensions, technical characteristics, performance requirements and test methods.

This document is applicable to electrical connectors with sealing and shielding requirements meeting this document, with a rated voltage up to and including 750 V a.c. or 1 000 V d.c. and a current rating of 40 A, in the field of electrical and electronic equipment.

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 60050-581:2008, *International Electrotechnical Vocabulary (IEV) – Part 581: Electromechanical components for electronic equipment*

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

IEC 60228:2004, *Conductors of insulated cables*

IEC 60352-1, *Solderless connections – Part 1: Wrapped connections – General requirements, test methods and practical guidance*

IEC 60352-2, *Solderless connections – Part 2: Crimped connections – General requirements, test methods and practical guidance*

IEC 60352-3, *Solderless connections – Part 3: Solderless accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-4, *Solderless connections – Part 4: Solderless non-accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-5, *Solderless connections – Part 5: Press-in connections – General requirements, test methods and practical guidance*

IEC 60352-6, *Solderless connections – Part 6: Insulation piercing connections – General requirements, test methods and practical guidance*

IEC 60352-7, *Solderless connections – Part 7: Spring clamp connections – General requirements, test methods and practical guidance*