
Spojni vmesniki optičnih vlaken – 7. del: Družina spojnikov tipa MPO (IEC 61754-7:2004)

Fibre optic connector interfaces - Part 7: Type MPO connector family (IEC 61754-7:2004)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61754-7:2005

<https://standards.iteh.ai/catalog/standards/sist/6b4dd8bf-e914-4997-8f6e-61f39c16a741/sist-en-61754-7-2005>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61754-7:2005

<https://standards.iteh.ai/catalog/standards/sist/6b4dd8bf-e914-4997-8f6e-61f39c16a741/sist-en-61754-7-2005>

EUROPEAN STANDARD

EN 61754-7

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2005

ICS 33.180.20

Supersedes EN 61754-7:2001 + A1:2001 + A2:2001

English version

**Fibre optic connector interfaces
Part 7: Type MPO connector family
(IEC 61754-7:2004)**

Interfaces de connecteurs
pour fibres optiques
Partie 7: Famille de connecteurs
de type MPO
(CEI 61754-7:2004)

Steckgesichter von Lichtwellenleiter-
Steckverbindern
Teil 7: Bauart MPO Steckverbinderfamilie
(IEC 61754-7:2004)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This European Standard was approved by CENELEC on 2004-12-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 86B/2018/FDIS, future edition 2 of IEC 61754-7, prepared by SC 86B, Fibre optic interconnecting devices and passive components, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61754-7 on 2004-12-01.

This European Standard supersedes EN 61754-7:2001 + A1:2001 + A2:2001.

Specific technical changes involve increased fibre counts: up from 12 fibres in the previous edition to 16 fibres, 20 fibres and 24 fibres.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-12-01

The International Electrotechnical Commission (IEC) and CENELEC draw attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning MPO connectors.

The IEC and CENELEC take 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 under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with the IEC. Information may be obtained from:

Intellectual Property Department,
Nippon Telegraph and Telephone Corporation,
20-2 Nishi-shinjuku 3-Chome Shinjukuku,
Tokyo 163-14, Japan.

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

Endorsement notice

The text of the International Standard IEC 61754-7:2004 was approved by CENELEC as a European Standard without any modification.

NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC

61754-7

Deuxième édition
Second edition
2004-11

Interfaces de connecteurs
pour fibres optiques –

Partie 7:
Famille de connecteurs de type MPO

iTeh STANDARD PREVIEW

Fibre (optic connector interfaces –

Part 7: [SIST EN 61754-7:2005](https://standards.iteh.ai/catalog/standards/sist/en-61754-7-2005)

<https://standards.iteh.ai/catalog/standards/sist/en-61754-7-2005>
Type MPO connector family [14-4997-8f6e-61f39c16a741/sist-en-61754-7-2005](https://standards.iteh.ai/catalog/standards/sist/en-61754-7-2005)

© IEC 2004 Droits de reproduction réservés — Copyright - all rights reserved

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'éditeur.

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 the publisher.

International Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

U

*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

CONTENTS

FOREWORD.....	3
1 Scope.....	9
2 Description	9
3 Interfaces	9
Figure 1 – MPO connector configurations	11
Figure 2a – MPO female plug connector angled interface	13
Figure 2b – Optical datum target location diagrams	17
Figure 2c – Gauge pin	21
Figure 2d – Gauge for plug.....	23
Figure 3 – MPO male plug connector angled interface	25
Figure 4 – MPO adaptor interface.....	29
Figure 5 – MPO female plug connector flat interface.....	33
Figure 6 – MPO male plug connector flat interface.....	37
Figure 7 – MPO backplane housing interface.....	41
Figure 8 – MPO printed board housing interface.....	47
ITEN STANDARD PREVIEW (standards.iteh.ai)	
Table 1a – Dimensions of the MPO female plug connector angled interface.....	15
Table 1b – Dimensions of the gauge pin.....	21
Table 1c – Dimensions of the gauge for plug.....	23
Table 2 – Dimensions of the MPO male plug connector angled interface.....	27
Table 3 – Dimensions of the MPO adaptor interface	31
Table 4 – Dimensions of the MPO female plug connector flat interface	35
Table 5 – Dimensions of the MPO male plug connector flat interface	39
Table 6a – Dimensions of the MPO backplane housing.....	45
Table 6b – Grade	47
Table 7 – Dimensions of the MPO printed board housing interface.....	51

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIBRE OPTIC CONNECTOR INTERFACES –

Part 7: Type MPO connector family

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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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.

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 MPO connectors.

The 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 under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with the IEC. Information may be obtained from:

Intellectual Property Department,
Nippon Telegraph and Telephone Corporation,
20-2 Nishi-shinjuku 3-Chome Shinjuku,
Tokyo 163-14, Japan.

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

International Standard IEC 61754-7 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 1996, Amendment 1 (1999) and Amendment 2 (2000). This second edition constitutes a technical revision.

Specific technical changes involve increased fibre counts: up from 12 fibres in the previous edition to 16 fibres, 20 fibres and 24 fibres.

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

FDIS	Report on voting
86B/2018/FDIS	86B/2039/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.

IEC 61754 consists of multiple parts, under the general title *Fibre optic connector interfaces*:

- Part 1, entitled *General and guidance*, covers general information.
- Subsequent parts contain interfaces for various connector families

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

[SIST EN 61754-7:2005](http://webstore.iec.ch/catalog/standards/sist/6b4dd8bf-e914-4997-88fe-61f39c16a741/sist-en-61754-7-2005)

<http://webstore.iec.ch/catalog/standards/sist/6b4dd8bf-e914-4997-88fe-61f39c16a741/sist-en-61754-7-2005>

FIBRE OPTIC CONNECTOR INTERFACES –

Part 7: Type MPO connector family

1 Scope

This part of IEC 61754 defines the standard interface dimensions for type MPO family of connectors.

2 Description

The parent connector for type MPO connector family is a multiway plug connector characterized by a rectangular ferrule normally 6,4 mm × 2,5 mm which utilizes two pins of 0,7 mm diameter as its alignment. It is applicable to a joint of multiple fibres up to 12 fibres by arraying them between two pin-positioning holes in the ferrule. Furthermore, it is capable of joining up to 24 fibres by arraying them with a two layer arrangement. The connector includes a push-pull coupling mechanism and a ferrule spring loaded in the direction of the optical axis. The connector has a single male key which may be used to orient and limit the relative position between the connector and the component to which it is mated.

Connector interfaces are configured using a female plug without pins, a male plug with pins fixed and an adaptor as shown in Figure 1. The female plug is intermateable with the male plug.

Moreover, connector interfaces between the female plug and the male plug are configured by applying a backplane housing and a printed board housing instead of the adaptor.

<https://standards.iteh.ai/catalog/standards/sist/6b4dd8bf-e914-4997-886e-61f39c16a741/sist-en-61754-7-2005>

3 Interfaces

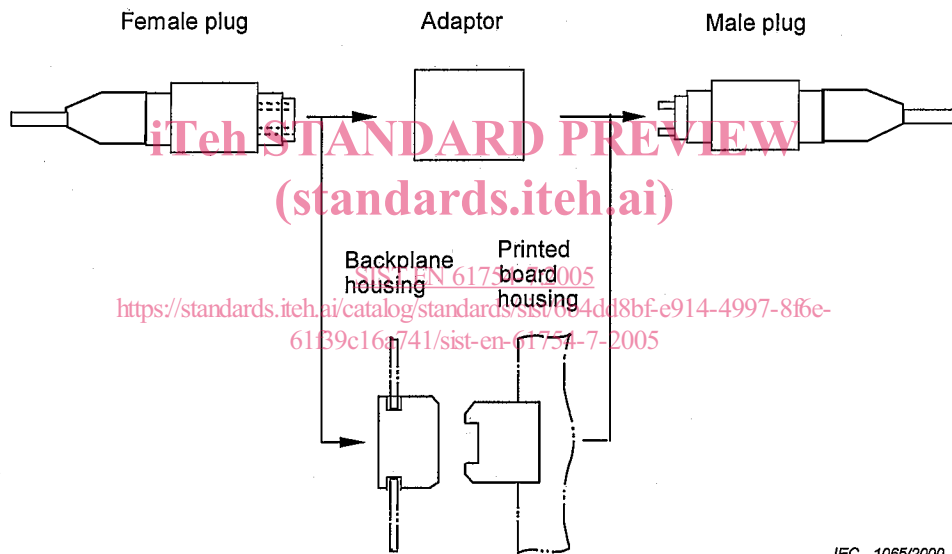
This standard contains the following standard interfaces.

- Interface 7-1: MPO female plug connector angled interface – Push/pull consisting of:
 - Interface 7-1-1 for 2 to 12 fibres
 - Interface 7-1-2 for 16 to 24 fibres
- Interface 7-2: MPO male plug connector angled interface – Push/pull consisting of:
 - Interface 7-2-1 for 2 to 12 fibres
 - Interface 7-2-2 for 16 to 24 fibres
- Interface 7-3: MPO adaptor interface – Push/pull
- Interface 7-4: MPO female plug connector flat interface – Push/pull consisting of:
 - Interface 7-4-1 for 2 to 12 fibres
 - Interface 7-4-2 for 16 to 24 fibres
- Interface 7-5: MPO male plug connector flat interface – Push/pull consisting of:
 - Interface 7-5-1 for 2 to 12 fibres
 - Interface 7-5-2 for 16 to 24 fibres
- Interface 7-6: MPO backplane housing interface – Self-retaining
- Interface 7-7: MPO printed board housing interface – Self-retaining

The following standards are intermateable:

Female plugs	Adaptors/housings	Male plugs
7-1-1	7-3	7-2-1
7-1-2	7-3	7-2-2
7-4-1	7-3	7-5-1
7-4-2	7-3	7-5-2
7-1-1	7-6 and 7-7	7-2-1
7-1-2	7-6 and 7-7	7-2-2
7-4-1	7-6 and 7-7	7-5-1
7-4-2	7-6 and 7-7	7-5-2

NOTE Connector interfaces among 2 to 12 fibres will intermate and will correctly align the lower defined numbers of optical datum targets. Also connector interfaces among 16 to 24 fibres will intermate and will correctly align the lower defined numbers of optical datum targets



IEC 1065/2000

Figure 1 – MPO connector configurations

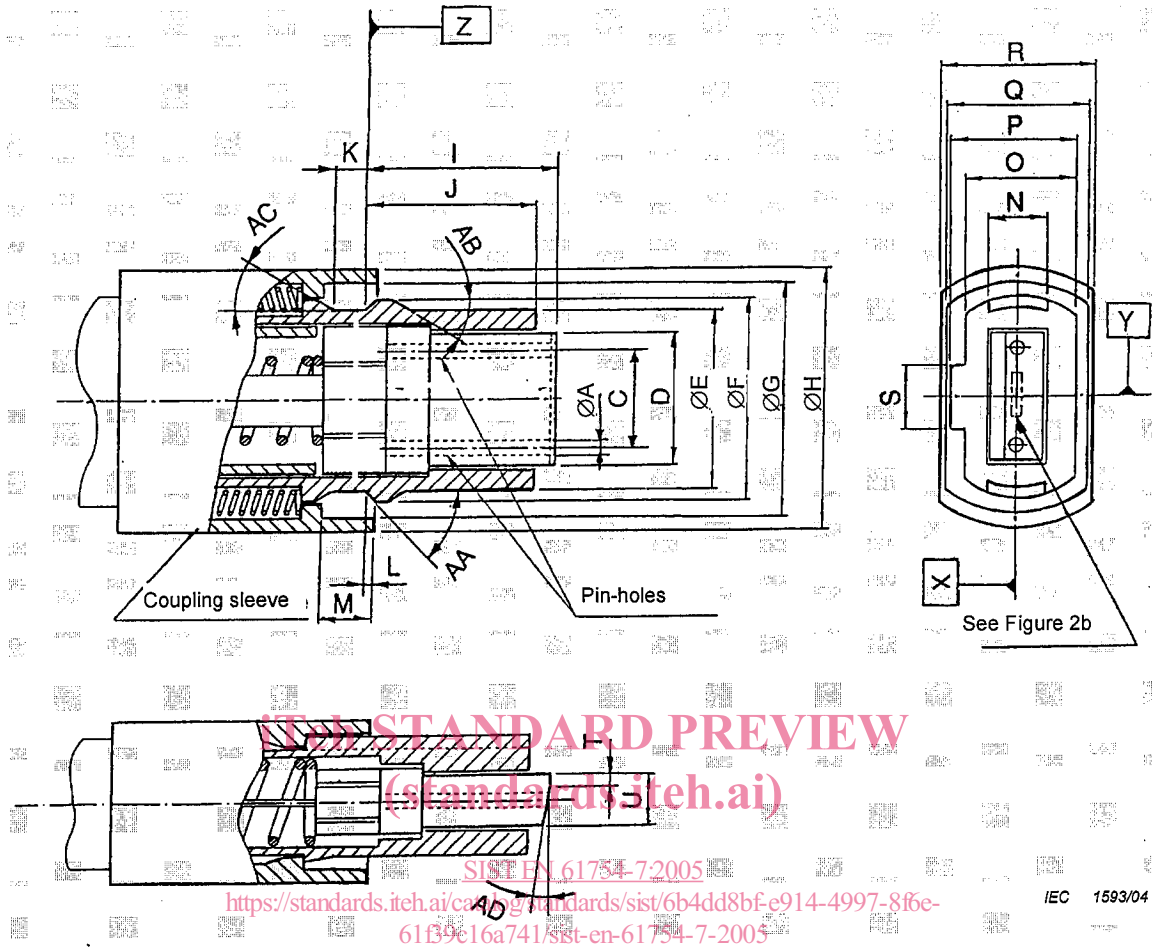


Figure 2a – MPO female plug connector angled interface

Table 1a – Dimensions of the MPO female plug connector angled interface

Reference	Dimensions		Notes
	Minimum	Maximum	
A	0,699 mm	0,701 mm	1
C	4,597 mm	4,603 mm	2
D	6,3 mm	6,5 mm	
E	8,34 mm	8,54 mm	
F	9,49 mm	9,59 mm	
G	10,85 mm	11,05 mm	
H	12,19 mm	12,59 mm	
I	8,8 mm	9,2 mm	3
J	7,9 mm	8,1 mm	
K	1,4 mm	–	
L	0,2 mm	0,8 mm	4 and 5
M	2,4 mm	2,6 mm	
N	2,8 mm	3,0 mm	
O	4,89 mm	4,99 mm	
P	5,59 mm	5,69 mm	
Q	5,7 mm	–	
R	–	7,7 mm	
S	2,9 mm	3,1 mm	
T	–	0,8 mm	
U	2,4 mm	2,5 mm	
AA	42°	45°	
AB	–	45°	
AC	–	45°	
AD	7,5°	8,5°	

NOTE 1 Each pin-hole must accept a gauge pin as shown in Figure 2c to a depth of 5,5 mm with a maximum force of 1,7 N. In addition, two pin-holes of a plug must accept a gauge as shown in Figure 2d to a depth of 5,5 mm with a maximum force of 3,4 N.

NOTE 2 Dimension C is defined as the distance between two pin-hole centres.

NOTE 3 Dimension I is given for a fibre endface centre of a plug end when not mated. It is noticed that a ferrule is movable by a certain axial compression force, and therefore the dimension I is variable. Ferrule compression force must be 7,8 N to 11,8 N when a position of the fibre endface from the datum Z is in the range of 8,2 mm to 8,4 mm.

NOTE 4 Coupling sleeve must be movable by a certain axial compression force. Dimension L is given for a coupling sleeve end when not mated. Coupling sleeve compression force must be 2,9 N to 6,9 N when a position of the coupling sleeve endface from datum Z is in the range of 0 mm to 0,1 mm to the right or to the left of datum Z.

NOTE 5 An adaptor coupling part must be unlocked by a left-direction movement of a coupling sleeve, when it is separate from an adaptor. When the coupling sleeve is moved for unlocking, a position of the coupling sleeve endface must be larger than 2,0 mm in the left direction from the datum Z.