

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 20: Type LC connector family

Dispositifs d'interconnexion et composants passifs fibroniques – Interfaces de connecteurs à fibres optiques – Partie 20: Famille de connecteurs de type LC





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 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 Secretariat
3, rue de Varembé
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 It also gives information on projects, replaced and withdrawn publications.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.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

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.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



IEC 61754-20

Edition 2.1 2022-06
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 20: Type LC connector family

Dispositifs d'interconnexion et composants passifs fibroniques – Interfaces de connecteurs à fibres optiques – Partie 20: Famille de connecteurs de type LC

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.180.20

ISBN 978-2-8322-3963-6

**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.**

REDLINE VERSION

VERSION REDLINE



Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 20: Type LC connector family

Dispositifs d'interconnexion et composants passifs fibroniques – Interfaces de connecteurs à fibres optiques – Partie 20: Famille de connecteurs de type LC

CONTENTS

FOREWORD	3
INTRODUCTION	5
1 Scope	6
2 Normative references	6
3 Description	6
4 Interfaces	6
Annex A (informative) Additional adaptor dimensional information	24
Bibliography	28
Figure 1 – Plug connector interface reference planes	9
Figure 2 – Detail A of Figure 1 – Plug connector interface – Expanded view drawings not-to-scale	9
Figure 3 – Plug connector interface	10
Figure 4 – APC plug connector interface	11
Figure 5 – Duplex and quad plug interfaces	12
Figure 6 – Simplex adaptor interface	15
Figure 7 – Junior (Jr.) adaptor interface (optional – note g of Table 3)	16
Figure 8 – Duplex and quad adaptor interfaces	17
Figure 9 – Active device receptacle interface	20
Figure 10 – Duplex and quad active device receptacle interfaces	21
Figure 11 – Pin gauge for active device receptacle	23
Figure A.1 – Simplex adaptor	24
Figure A.2 – Duplex square flange adaptor	25
Figure A.3 – Duplex rectangular flange adaptor	26
Figure A.4 – Quad rectangular flange adaptor	27
Table 1 – Plug to adaptor/receptacle intermateability	8
Table 2 – Plug to Plug Intermateability	8
Table 3 – Dimensions of the plug connector interface	13
Table 4 – Plug connector interface – Ferrule grade	14
Table 5 – Dimensions of the adaptor interface	18
Table 6 – Dimensions of the active device receptacle	22
Table 7 – Active device receptacle interface – Alignment sleeve grade	23
Table 8 – Pin gauge grade	23
Table A.1 – Dimensions of simplex adaptor	24
Table A.2 – Dimensions of duplex square flange adaptor	25
Table A.3 – Dimensions of duplex rectangular flange adaptor	26
Table A.4 – Dimensions for quad rectangular flange adaptor	27

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CONNECTOR INTERFACES –

Part 20: Type LC 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 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.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61754-20 edition 2.1 contains the second edition (2012-04) [documents 86B/3343/FDIS and 86B/3393/RVD] and its amendment 1 (2022-06) [documents 86B/4534/CDV and 86B/4595A/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 61754-20 has been prepared by subcommittee SC86B: Fibre optic interconnecting devices and passive components.

This second edition constitutes a technical revision. The changes with respect to the previous edition are to reconsider the whole document and to add Interface IEC 61754-20-9 to IEC 61754-20-16 for a plastic optical fibre (POF).

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

The list of all parts of IEC 61754 series, published under the general title, *Fibre optic interconnecting and passive components – Fibre optic connector interfaces* 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 the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under 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.

ITeH STANDARD PREVIEW
(standards.iteh.ai)

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning IEC 61754-20.

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 IEC. Information may be obtained from:

OFS Fitel LLC, Inc.,
2000 NE Expressway,
Norcross, GA 30071
USA

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.

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

(standards.iteh.ai)

[IEC 61754-20:2012](https://standards.iteh.ai/catalog/standards/sist/8088f36d-124f-4d10-b0a6-a9a3fdabf8fe/iec-61754-20-2012)

<https://standards.iteh.ai/catalog/standards/sist/8088f36d-124f-4d10-b0a6-a9a3fdabf8fe/iec-61754-20-2012>

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CONNECTOR INTERFACES –

Part 20: Type LC connector family

1 Scope

This International Standard defines the standard interface dimensions for the type LC family of connectors.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61755-3 series, *Fibre optic interconnecting devices and passive components – Fibre optic connector optical interfaces*

3 Description

The parent connector for type LC connector family is a simplex plug connector set of plug/adaptor/plug configuration which is characterized by:

- A 1,25 mm nominal diameter ferrule or, in the case of 1 mm OD POF, the fibre acts as the ferrule.
- The connector includes a single coupling latch and a ferrule spring loaded in the direction of the optical axis
- The plug 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.
- The optical alignment mechanism of the connectors is a rigid bore sleeve or a resilient sleeve.

Drawings and dimensions provided consist of those minimum features that are functionally critical during the mating and unmating sequences of the plug with its adapter/receptacle counterpart component. The provided dimensions might cause intermateability problems with plugs not compliant to the standard.

4 Interfaces

This ~~standard~~ document contains the following standard interfaces:

Interface 61754-20-1: simplex plug connector interface – physical contact (PC)

Interface 61754-20-2: simplex adaptor interface

Interface 61754-20-3: simplex active device receptacle interface

Interface 61754-20-4: duplex plug connector interface – PC

Interface 61754-20-5: duplex adaptor interface

Interface 61754-20-6: duplex active device receptacle interface

Interface 61754-20-7: simplex plug connector interface – angled physical contact (APC) 8°

Interface 61754-20-8: duplex plug connector interface – APC 8°

Interface 61754-20-9: simplex plug connector interface – plastic optical fibre (POF) 1,25 mm jacketed outer diameter (OD)

Interface 61754-20-10: duplex plug connector interface – POF 1,25 mm jacketed OD

Interface 61754-20-11: simplex plug connector interface – POF 1 mm

Interface 61754-20-12: duplex plug connector interface – POF 1 mm

Interface 61754-20-13: simplex adaptor interface – POF 1 mm

Interface 61754-20-14: duplex adaptor interface – POF 1 mm

Interface 61754-20-15: simplex active device receptacle interface – POF 1 mm

Interface 61754-20-16: duplex active device receptacle interface – POF 1 mm

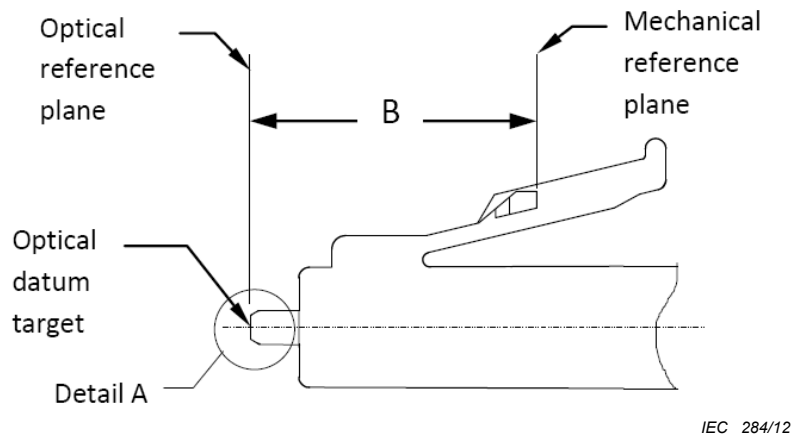
Interface 61754-20-17: quad plug interface – PC

Interface 61754-20-18: quad plug interface – APC 8°

Interface 61754-20-19: quad adaptor interface

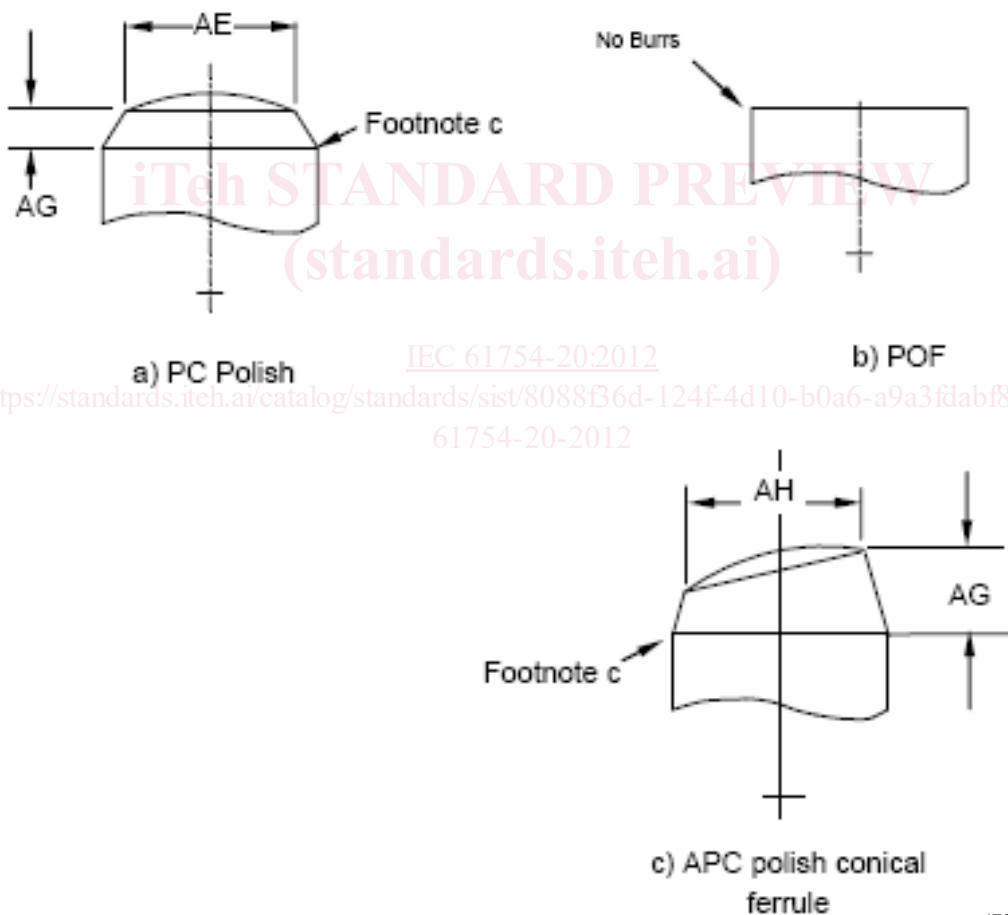
Interface 61754-20-20: quad active device receptacle interface

- The plug of interface IEC 61754-20-1 ~~and~~, interface IEC 61754-20-4 and interface 61754-20-17 has a ferrule with a spherically polished non-angled endface (PC) shown in Figure 2a).
- The plug of interface IEC 61754-20-7 ~~and~~, interface IEC 61754-20-8 and interface 61754-20-18 has a ferrule with a spherically polished angled endface (APC) shown in Figure 2c).
- The plug interfaces IEC 61754-20-9 through IEC 61754-20-12 have a flat smooth endface shown in Figure 2b) (POF only).
- The plug interfaces IEC 61754-20-9 and IEC 61754-20-10 (POF 1,25 mm jacketed OD) have a POF fibre of up to 0,750 mm in a 1,25 mm OD ferrule.
- The plug interfaces IEC 61754-20-11 and IEC 61754-20-12 ~~is~~ are the 1 mm POF without the use of a ferrule (see Table 3, footnote f).
- The plug connector interfaces and associated details are given in Figure 1, Figure 2, Figure 3, Figure 4, and Figure 5 along with Table 3 and Table 4.
- The adaptor interfaces and associated details are given in Figure 6, Figure 7, and, Figure 8 along with Table 5.
- The active device receptacle interfaces and associated details are given in Figure 9, Figure 10, and Figure 11 along with Table 6, Table 7, and Table 8.



IEC 284/12

Figure 1 – Plug connector interface reference planes



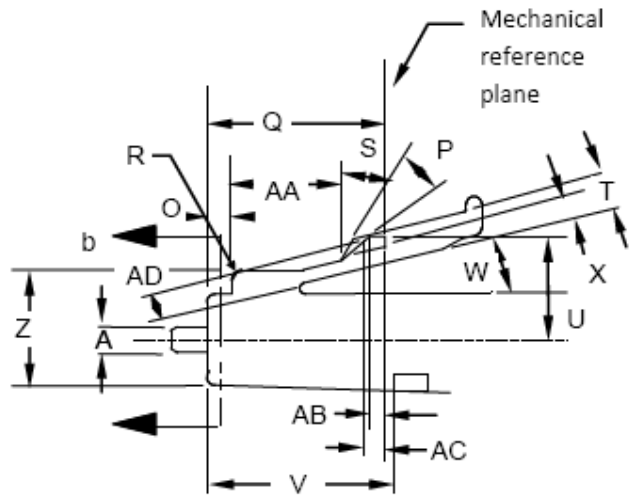
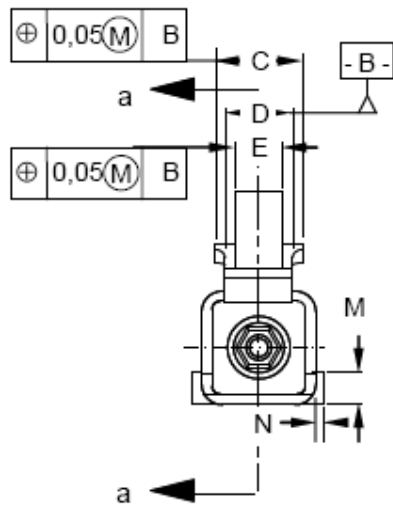
IEC 285/12

Key

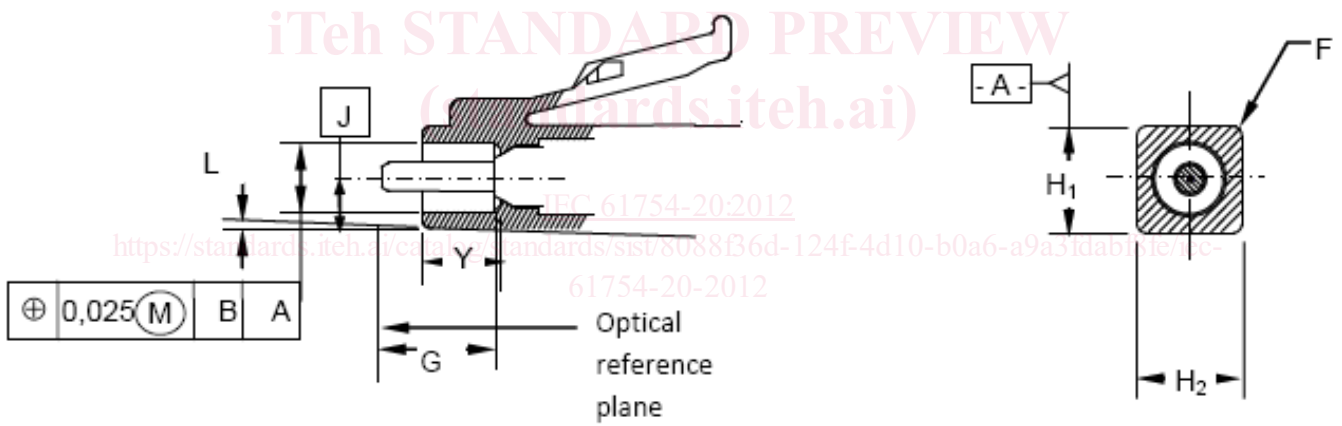
See Table 3.

Figure 2 – Detail A of Figure 1 – Plug connector interface – Expanded view drawings not-to-scale

Refer to IEC 61755-3 series documents for information on the end-face geometry requirements of PC and APC interfaces, respectively.



a) Plug connector interface



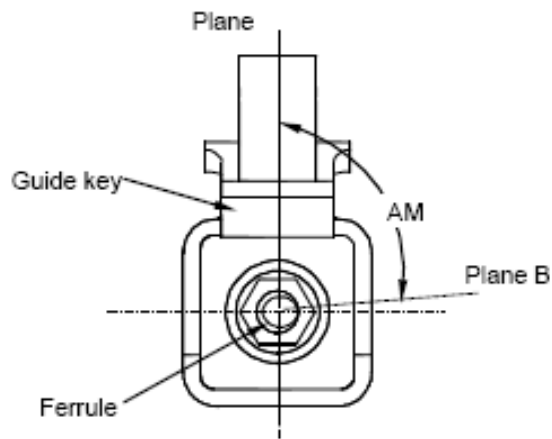
b) Section a-a

c) Section b-b

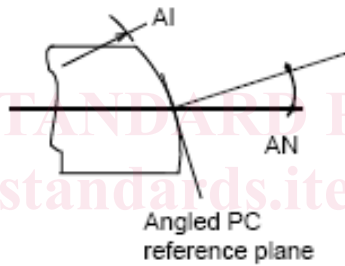
Key

See Table 3.

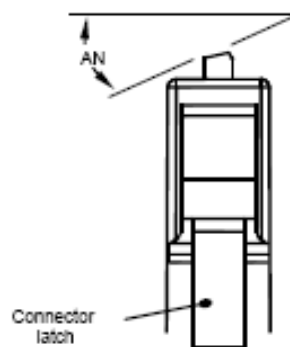
Figure 3 – Plug connector interface



a) – Expanded view from front



b) – APC ferrule endface geometry



c) – Top view

IEC 288/12

Key
See Table 3.

Figure 4 – APC plug connector interface