



# SLOVENSKI STANDARD SIST EN 61755-3-7:2009

01-junij-2009

Cdĥ b]j a Ygb] ]nUcdĥ bY\_cbY\_ĥcf'Y!' !+''XY.'Cdĥ b]j a Ygb] žW]bXf] bU  
dc`]\_UfVcbUrbUĥi`\_Ug'dfYa Yfca U&ž) 'a a ']b'%) 'a a žcVXU'Uc ]'a Uĥf]U'j`U\_Yb  
]n'ĥ]U'U'YbcfcXbc'j`U\_bc`fĥ7`\*%a)!' !+.&\$\$-Ł

Fibre optic connector optical interfaces - Part 3-7: Optical Interface, 2,5 mm and 1,25 mm diameter cylindrical PC composite ferrule using Titanium as fibre surrounding material, single mode fibre (IEC 61755-3-7:2009)

**STANDARD PREVIEW**

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Optische Schnittstellen von Lichtwellenleiter-Steckverbindern - Teil 3-7: Optische Schnittstelle - Zylindrische PC-Composite-Ferrulen mit 2,5 mm und 1,25 mm Durchmesser für Einmodenfaser, mit Titan als Material für die Faserfassung, Einmoden-LWL (IEC 61755-3-7:2009)

<https://standards.iteh.ai/catalog/standards/sist/68affbd3-6b45-4776-b3db-bebf7dc138c0/sist-en-61755-3-7-2009>

Dispositifs d'interconnexion et composants passifs à fibres optiques - Interfaces optiques de connecteurs pour fibres optiques - Partie 3-7: Interfaces optiques, ferrules composites cylindriques PC, de diamètre 2,5 mm et 1,25 mm, utilisant le titane comme matériau entourant la fibre, fibres unimodales (CEI 61755-3-7:2009)

**Ta slovenski standard je istoveten z: EN 61755-3-7:2009**

**ICS:**

33.180.20 Ú[ ç^: [ çæ) ^Á æ] æ^Á æ Fibre optic interconnecting devices  
[ ] cã } æç|æ } æ

**SIST EN 61755-3-7:2009 en,fr**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 61755-3-7:2009

<https://standards.iteh.ai/catalog/standards/sist/68affbd3-6b45-4776-b3db-bebf7dc138c0/sist-en-61755-3-7-2009>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61755-3-7**

April 2009

ICS 33.180.20

English version

**Fibre optic interconnecting devices and passive components -  
Fibre optic connector optical interfaces -  
Part 3-7: Optical interface,  
2,5 mm and 1,25 mm diameter cylindrical PC composite ferrule  
using titanium as fibre surrounding material,  
single mode fibre  
(IEC 61755-3-7:2009)**

Dispositifs d'interconnexion  
et composants passifs à fibres optiques -  
Interfaces optiques de connecteurs  
pour fibres optiques -  
Partie 3-7: Interfaces optiques,  
ferrules composites cylindriques PC,  
de diamètre 2,5 mm et 1,25 mm,  
utilisant le titane comme matériau  
entourant la fibre, fibres unimodales  
(CEI 61755-3-7:2009)

Lichtwellenleiter -  
Verbindungselemente  
und passive Bauteile -  
Optische Schnittstellen  
von Lichtwellenleiter-Steckverbindern -  
Teil 3-7: Optische Schnittstelle -  
Zylindrische PC-Composite-Ferrulen  
mit 2,5 mm und 1,25 mm Durchmesser  
für Einmodenfaser, mit Titan als Material  
für die Faserfassung, Einmoden LWL  
(IEC 61755-3-7:2009)

<https://standards.iteh.ai/catalog/standards/sist/68affd3-6b45-4726-b3db-bebf7dc138c0/sist-en-61755-3-7-2009>

This European Standard was approved by CENELEC on 2009-03-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

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

**Central Secretariat: avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 86B/2768/FDIS, future edition 1 of IEC 61755-3-7, 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 61755-3-7 on 2009-03-01.

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) 2009-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2012-03-01

---

## Endorsement notice

The text of the International Standard IEC 61755-3-7:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61753-1	NOTE	Harmonized as EN 61753-1:2007 (not modified).
IEC 61755-3	NOTE	Harmonized in EN 61755-3 series (modified).

**(standards.iteh.ai)**

SIST EN 61755-3-7:2009

<https://standards.iteh.ai/catalog/standards/sist/68affbd3-6b45-4776-b3db-bebf7dc138c0/sist-en-61755-3-7-2009>



IEC 61755-3-7

Edition 1.0 2009-01

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Fibre optic interconnecting devices and passive components – Fibre optic connector optical interfaces – Part 3-7: Optical interface, 2,5 mm and 1,25 mm diameter cylindrical PC composite ferrule using titanium as fibre surrounding material, single mode fibre**

<https://standards.iteh.ai/catalog/standards/sist/68affbd3-6b45-4776-b3db-1b5ec0c0e155/sist-en-61755-3-7-2009>

**Dispositifs d'interconnexion et composants passifs à fibres optiques – Interfaces optiques de connecteurs pour fibres optiques – Partie 3-7: Interfaces optiques, férules composites cylindriques PC, de diamètre 2,5 mm et 1,25 mm, utilisant le titane comme matériau entourant la fibre, fibres unimodales**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE  
CODE PRIX

K

ICS 33.180.20

ISBN 2-8318-1023-2

## CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Description.....	5
3 Interface parameters for PC ferrule independent from the ferrule material.....	6
Annex A (informative).....	9
Bibliography.....	10
Figure 1 – Interface dimensions for PC ferrule.....	6
Figure 2 – Fibre core location.....	6
Figure 3 – Interface dimension of the end-face contact zone.....	7
Table 1 – Optical interface parameter values for 2,5 mm diameter PC ferrule.....	7
Table 2 – Optical interface parameter values for 1,25 mm diameter PC ferrule.....	8

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 61755-3-7:2009](https://standards.iteh.ai/catalog/standards/sist/68affbd3-6b45-4776-b3db-bebf7dc138c0/sist-en-61755-3-7-2009)

<https://standards.iteh.ai/catalog/standards/sist/68affbd3-6b45-4776-b3db-bebf7dc138c0/sist-en-61755-3-7-2009>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 3-7: Optical interface, 2,5 mm and 1,25 mm diameter  
cylindrical PC composite ferrule using titanium as fibre  
surrounding material, single mode fibre**

## 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.
- 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 61755-3-7 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86B/2768/FDIS	86B/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 of the IEC 61755 series, published under the general title *Fibre optic interconnecting devices and passive components – Fibre optic connector optical 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 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.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 61755-3-7:2009](#)

<https://standards.iteh.ai/catalog/standards/sist/68affbd3-6b45-4776-b3db-bebf7dc138c0/sist-en-61755-3-7-2009>



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

**Part 3-7: Optical interface, 2,5 mm and 1,25 mm diameter  
cylindrical PC composite ferrule using titanium as fibre  
surrounding material, single mode fibre**

## 1 Scope

This part of IEC 61755 defines dimensional limits and material properties of a 2,5 mm and a 1,25 mm diameter cylindrical composite ferrule optical interface to meet specific requirements for PC fibre-to-fibre interconnection. The composite ferrule uses different materials in the end face contact zone and in ferrule to sleeve contact zone. The specified materials for each zone are zirconia ( $ZrO_2$ ) for the ferrule to sleeve contact zone and titanium for the end face contact zone. Ferrules made from the material specified in this standard are suitable for use in categories C, U, E and O as defined in IEC 61753-1.

NOTE If mated within the same family (cylindrical PC ferrule), the ferrules specified in this standard are intended to have the same optical attenuation performance grade for connections with all ferrules described in different parts of IEC 61755-3.

## 2 Description

The performance of a cylindrical ferrule optical interface is determined by the accuracy with which the optical datum targets of two mating ferrules are aligned with each other. There are three conditions affecting the alignment of two optical datum targets, lateral offset, angular offset and longitudinal offset.

Parameters influencing the lateral and angular offset of the optical fibre axes include the following:

- ferrule outside diameter;
- fibre hole concentricity relative to the ferrule outside diameter;
- fibre hole angle relative to outside diameter axis;
- fibre cladding diameter to fibre hole clearance;
- alignment sleeve inside diameter;
- fibre core concentricity relative to the cladding diameter;
- fibre core orientation relative to keying feature.

Parameters influencing the longitudinal offset of the optical fibre axes include the following:

- end face spherical radius;
- end face spherical radius apex offset;
- fibre undercut;
- axial force on ferrule end face;
- ferrule and fibre material physical constants;
- alignment sleeve frictional force.