

STN	Optovláknové aktívne súčiastky a prvky. Normy na puzdro a rozhranie. Časť 18: Sériové vysielacie a prijímacie moduly pre rozhrania 40-Gbit/s s LC konektorom.	STN EN 62148-18 35 9255
------------	--	---

Fibre optic active components and devices - Package and interface standards - Part 18: 40-Gbit/s serial transmitter and receiver components for use with the LC connector interface

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/15

Obsahuje: EN 62148-18:2015, IEC 62148-18:2014

121128

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, 2015
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

EUROPEAN STANDARD

EN 62148-18

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2015

ICS 33.180.20

English Version

Fibre optic active components and devices - Package and interface standards - Part 18: 40-Gbit/s serial transmitter and receiver components for use with the LC connector interface (IEC 62148-18:2014)

Composants et dispositifs actifs à fibres optiques - Normes de boîtier et d'interface - Partie 18 : Composants d'émetteurs et de récepteurs série à 40 Gbit/s, destinés à être utilisés avec les interfaces des connecteurs LC (IEC 62148-18:2014)

Aktive Lichtwellenleiterbauelemente und -geräte - Gehäuse- und Schnittstellennormen - Teil 18: Serielle Sende- und Empfangsmodule für 40 Gbit/s für Schnittstellen mit LC-Steckverbinder (IEC 62148-18:2014)

This European Standard was approved by CENELEC on 2014-12-30. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, 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: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 86C/1227/CDV, future edition 1 of IEC 62148-18, prepared by SC 86C "Fibre optic systems and active devices" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62148-18:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-09-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-12-30

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62148-18:2014 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 60191	NOTE	Harmonized in EN 60191 series (not modified).
IEC 61281-1	NOTE	Harmonized as EN 61281-1.
IEC 61754-20	NOTE	Harmonized as EN 61754-20.
ISO 1101	NOTE	Harmonized as EN ISO 1101.

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62148-1	-	Fibre optic active components and devices - Package and interface standards - Part 1: General and guidance	EN 62148-1	-
IEC Guide 107	-	Electromagnetic compatibility - Guide to the drafting of electromagnetic compatibility publications	-	-



INTERNATIONAL STANDARD

**Fibre optic active components and devices – Package and interface standards –
Part 18: 40-Gbit/s serial transmitter and receiver components for use with
the LC connector interface**





THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2014 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.

IEC Central Office
 3, rue de Varembe
 CH-1211 Geneva 20
 Switzerland

Tel.: +41 22 919 02 11
 Fax: +41 22 919 03 00
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 corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

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 also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 14 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 55 000 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.

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: csc@iec.ch.



INTERNATIONAL STANDARD

**Fibre optic active components and devices – Package and interface standards –
Part 18: 40-Gbit/s serial transmitter and receiver components for use with
the LC connector interface**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE



ICS 33.180.20

ISBN 978-2-8322-1923-2

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms, definitions and abbreviations	7
3.1 Terms and definitions.....	7
3.2 Abbreviations	7
4 Electromagnetic compatibility (EMC) requirements	8
5 Classification.....	8
6 Specification of 40-Gbit/s serial transmitter component for LC connectors without thermo-electric cooler	8
6.1 General.....	8
6.2 Electrical interface	8
6.2.1 General	8
6.2.2 Numbering of electrical terminals.....	8
6.2.3 Electrical terminal assignment	9
6.3 Outline and footprint	11
6.3.1 Drawing of package outline.....	11
6.3.2 Drawing of footprint	13
7 Specification of 40-Gbit/s serial transmitter component for LC connectors with thermo-electric cooler	14
7.1 General.....	14
7.2 Electrical interface	14
7.2.1 General	14
7.2.2 Numbering of electrical terminals.....	15
7.2.3 Electrical terminal assignment	16
7.3 Outline and footprint	18
7.3.1 Drawing of package outline.....	18
7.3.2 Drawing of footprint	20
8 Specification of 40-Gbit/s serial transmitter component for LC connectors with thermo-electric cooler and built-in driver	21
8.1 General.....	21
8.2 Electrical interface	21
8.2.1 General	21
8.2.2 Numbering of electrical terminals.....	22
8.2.3 Electrical terminal assignment	23
8.3 Outline and footprint	25
8.3.1 Drawing of package outline.....	25
8.3.2 Drawing of footprint	27
9 Specification of receiver component for LC connectors with PIN.....	28
9.1 General.....	28
9.2 Electrical interface	28
9.2.1 General	28
9.2.2 Numbering of electrical terminals.....	29
9.2.3 Electrical terminal assignment	29
9.3 Outline and footprint	31

9.3.1	Drawing of package outline.....	31
9.3.2	Drawing of footprint	33
	Bibliography.....	35
Figure 1	– Electrical terminal numbering assignments.....	8
Figure 2	– Block diagram	9
Figure 3	– Package outline drawing	11
Figure 4	– Recommended pattern layout for the PCB.....	13
Figure 5	– Electrical terminal numbering assignments.....	15
Figure 6	– Block diagram	16
Figure 7	– Package outline	18
Figure 8	– Recommended pattern layout for the PCB.....	20
Figure 9	– Electrical terminal numbering assignments.....	22
Figure 10	– Block diagram	23
Figure 11	– Package outline	25
Figure 12	– Recommended pattern layout for the PCB.....	27
Figure 13	– Electrical terminal numbering assignments.....	29
Figure 14	– Block diagram	29
Figure 15	– Package outline	31
Figure 16	– Recommended pattern layout for the PCB.....	33
Table 1	– Terminal function definitions.....	10
Table 2	– Dimensions of the package outline	12
Table 3	– Dimensions of the recommended pattern layout for the PCB	14
Table 4	– Terminal function definitions.....	17
Table 5	– Dimensions of the package outline	19
Table 6	– Dimensions of the recommended pattern layout for the PCB	21
Table 7	– Terminal function definitions.....	24
Table 8	– Dimensions of the package outline	26
Table 9	– Dimensions of the recommended pattern layout for the PCB	28
Table 10	– Terminal function definitions.....	30
Table 11	– Dimensions of the package outline	32
Table 12	– Dimensions of the recommended pattern layout for the PCB	34

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES –
PACKAGE AND INTERFACE STANDARDS –**
**Part 18: 40-Gbit/s serial transmitter and receiver components
for use with the LC connector interface**

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 62148-18 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

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

CDV	Report on voting
86C/1227/CDV	86C/1273/RVC

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 62148 series, published under the general title *Fibre optic active components and devices – Package and interface standards*, can be found on the IEC website.

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.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Compact optical sub-assembly (OSA) modules for 40 Gbit/s are used to convert electrical signals into optical signals and vice-versa. This part of IEC 62148 covers the physical interface for 40-Gbit/s compact OSA modules. These modules are designed for use with the LC fibre optic connector specified in IEC 61754-20, and are intended to be applied to 40 Gbit/s or higher bit rate transceivers.

FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES – PACKAGE AND INTERFACE STANDARDS –

Part 18: 40-Gbit/s serial transmitter and receiver components for use with the LC connector interface

1 Scope

This part of IEC 62148 covers the 40-Gbit/s serial physical interface specification of transmitter and receiver components for use with the LC connector interface.

The purpose of this standard is to adequately specify the physical requirements of optical transmitters and receivers that will enable mechanical interchangeability of transmitters and receivers complying with this standard both at the PCB level and for any panel-mounting requirement.

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 62148-1, *Fibre optic active components and devices – Package and interface standards – Part 1: General and guidance*

IEC Guide 107, *Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN