SLOVENSKI STANDARD
SIST EN 50377-18-1:2019

01-julij-2019

Konektorski sestavi in povezovalne komponente za uporabo v optičnih komunikacijskih sistemih - Specifikacije izdelka - 18-1. del: Sprejemnik/oddajnik tipa 4+4x10.3125 Gb/s MPO (QFSP) s konektorjem MPO, ki je opremljen z 12 vlakenskimi tulkami PPS, zaključenimi na 50/125 mikronskem večrodnem vlaknu kategorije A1a.3a ali A1a.3b po standardu EN 60793-2-10

Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications - Part 18-1: type 4+4x10.3125 Gb/s MPO (QFSP) transceiver mated with an MPO connector equipped with 12 fibre PPS ferrules terminated on EN 60793-2-10 category A1a.3a or A1a.3b 50/125 micron multimode fibre

Steckverbindersätze und Verbindungsbauelemente für Lichtwellenleiter-Datenübertragungssysteme - Produktnormen - Teil 18-1: Sende-Empfangsgerät der Bauart 4+4x10.3125 Gb/s MPO (QFSP) mit MPO-Steckverbinder, ausgestattet mit PPS-Ferrulen für 12 Fasern, abgeschlossen mit 50/125-Mikrometer-Mehrmodenfasern der Kategorie A1a.3a oder A1a.3b nach EN 60793-2-10

Jeux de connecteurs et composants d'interconnexion à utiliser dans les systèmes de communication par fibres optiques - Spécifications de produits - Partie 18-1: émetteur-récepteur de type 4+4x10.3125 Gb/s MPO (QFSP) accouplé à un connecteur MPO équipé de férules PPS 12 fibres

Ta slovenski standard je istoveten z: **EN 50377-18-1:2019**

ICS:

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices

SIST EN 50377-18-1:2019 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50377-18-1

April 2019

ICS 33.180.20

English Version

Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications - Part 18-1: type 4+4x10.3125 Gb/s MPO (QFSP) transceiver mated with an MPO connector equipped with 12 fibre PPS ferrules terminated on EN 60793-2-10 category A1a.3a or A1a.3b 50/125 micron multimode fibre

Jeux de connecteurs et composants d'interconnexion à utiliser dans les systèmes de communication par fibres optiques - Spécifications de produits - Partie 18-1: émetteur-récepteur de type 4+4x10.3125 Gb/s MPO (QFSP) accouplé à un connecteur MPO équipé de férules PPS 12 fibres

Steckverbindersätze und Verbindungsbauelemente für Lichtwellenleiter-Datenübertragungssysteme - Produktnormen - Teil 18-1: Sende-Empfangsgerät der Bauart 4+4x10.3125 Gb/s MPO (QFSP) mit MPO-Steckverbinder, ausgestattet mit PPS-Ferrulen für 12 Fasern, abgeschlossen mit 50/125-Mikrometer-Mehrmodenfasern der Kategorie A1a.3a oder A1a.3b nach EN 60793-2-10

This European Standard was approved by CENELEC on 2017-12-29. 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, Serbia, 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: Rue de la Science 23, B-1040 Brussels

Contents

Page

Figures

Tables

European foreword

This document (EN 50377-18-1:2019) has been prepared by CLC/TC/86BXA "*Fibre optic interconnect, passive and connectorised components*".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2019-10-19
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-04-19

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

CONNECTOR SETS AND INTERCONNECT COMPONENTS TO BE USED IN OPTICAL FIBRE COMMUNICATION SYSTEMS – PRODUCT SPECIFICATIONS

Part 18-1: Type 4+4x10,3125 Gb/s MPO (QSFP) transceiver mated with an MPO connector equipped with 12 fibre PPS ferrules terminated on EN 60793-2-10 category A1a.3a or A1a.3b, 50/125 micron multimode fibre

Description		Performance	
Coupling mechanism:	push-pull	Application:	Indoor applications (test severities derived from EN 61753-1 category C)
Configuration:	Transceiver /plug	Transmission speed:	4x 10,312 5 Gb/s
		Medium:	150 m cable
Fibre category:	EN 60793-2-10,type A1a.3a, A1a.3b, A1a.4a, A1a.4b		

Related documents:

EN 50377-15-1, *Connector sets and interconnect components to be used in optical fibre communication systems, product specifications – MPO connector with 12 fibre PPS ferrules terminated on EN 60793-2 category A1a 50/125 micron multimode fibre*

ISO/IEC 11801, *Information technology – Generic cabling for customer premises*

EN 60793-2, *Optical fibres – Part 2: Product specifications – General (IEC 60793-2)*

EN 60794-2, *Optical fibre cables – Part 2: Indoor cables – Sectional specification (IEC 60794-2)*

EN 60794-2-30, *Optical fibre cables – Part 2-30: Indoor cables – Family specification for optical fibre ribbon cables (IEC 60794-2-30)*

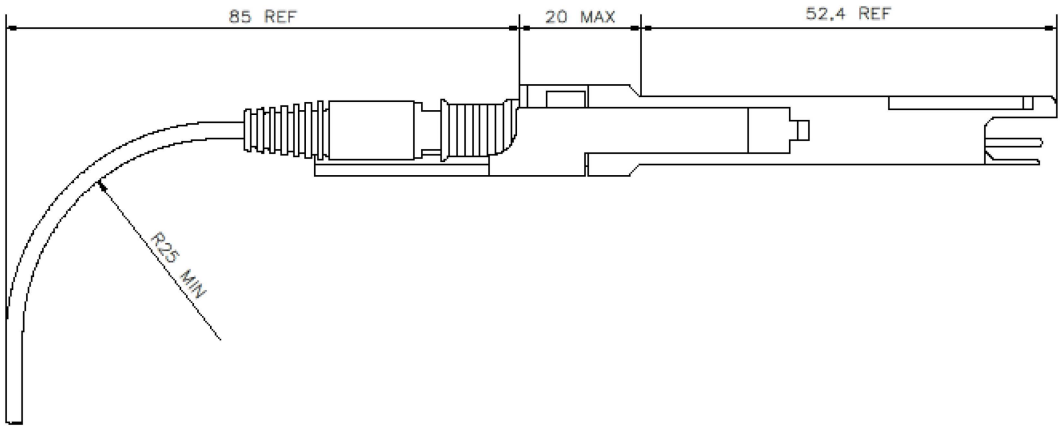
EN 61300 series, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures (IEC 61300 series)*

EN 61753-1, *Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards (IEC 61753-1)*

EN 61754-7-1, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 7: Type MPO connector family (IEC 61754-7-1)*

EIA-964, *Specification for QSFP+ 10 GB/s Pluggable transceiver*

Maximum outline dimensions:



1 Scope

1.1 Product definition

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements (excluding electrical requirements) to be met by a 12 fibre multimode PPS MPO plug terminated on EN 60793-2-10 category A1a.3a or A1a.3b fibre and a 4+4x10,3125 Gb/s MPO (QSFP) transceiver to meet in order to be categorized as an EN standard product.

Since different variants are permitted, product marking details are given in 4.6.

1.2 Intermateability

All products conforming to the requirements of this standard are meant to intermate and give the specified performance level. The intention is that this will be true irrespective of the manufacturing source(s) of the product.

1.3 Operating environment

The tests selected, combined with the severity and duration, are representative of a backplane/back panel indoor application typically in a data centre environment derived from a customer premises protected environment as defined in the EN 50173 series and the ISO/IEC 11801 series and specified as category C in EN 61753-1.

1.4 Reliability

Whilst the anticipated service life expectancy of the product in this environment is 10 years, compliance with this standard does not guarantee the reliability of the product. This should be predicted using a recognized reliability assessment programme.

1.5 Quality assurance

Compliance with this standard does not guarantee the manufacturing consistency of the product. This should be maintained using a recognized quality assurance programme.

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.

EN 61300-2-1, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-1: Tests - Vibration (sinusoidal) (IEC 61300-2-1)*

EN 61300-2-2, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-2: Tests - Mating durability (IEC 61300-2-2)*

EN 61300-2-9, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-9: Tests – Shock (IEC 61300-2-9)*

EN 61300-2-22, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-22: Tests - Change of temperature (IEC 61300-2-22)*

EN 61300-2-42, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-42: Tests - Static side load for strain relief (IEC 61300-2-42)*

EN 61300-2-44, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-44: Tests - Flexing of the strain relief of fibre optic devices (IEC 61300-2-44)*

EN 61300-3-28, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-28: Examinations and measurements - Transient loss (IEC 61300-3-28)*

EN 61754-7-1, *Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 7-1: Type MPO connector family - One fibre row (IEC 61754-7-1)*

EN 61754-10:2005, *Fibre optic connector interfaces - Part 10: Type Mini-MPO connector family (IEC 61754-10:2005)*

EN 61754-18, *Fibre optic connector interfaces - Part 18: Type MT-RJ connector family (IEC 61754-18)*

IEEE 802.3:2012, *40GBase-SR4*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Product

4.1 Description

The MPO connector is a single-position plug, multifibre connector set of plug-adapter-plug configuration characterized by a spring loaded butting rectangular ferrule with twelve optical fibres and a push-pull coupling mechanism. The optical alignment mechanism of the plug and transceiver receptacle is of precision pin and hole type. The MPO transceiver is based on the MPO receptacle and a rectangular ferrule with 12 fibres and a push pull mechanism.

4.2 Plug

The plug features a rectangular thermo plastic composite ferrule and a push-pull coupling mechanism.

A cover (dust cap) to protect the ferrule end face when the plug and transceiver are in the unmated condition shall be provided.

4.3 Transceiver

The transceiver is of a quad small form factor (SFF) design made in agreement with EIA-964 specification for QSFP+ 10 GB/s Pluggable transceiver. It has four individual addressable transmit and receive channels and is intermateable with the MPO connector 12 fibre interface. The transceiver is equipped with a 12 fibre MT ferrule with material according to clause 4.4 with end face geometry and core true position according to this standard.

The transceiver is mountable (electrically hot pluggable) in a standard QSFP cage according to EIA-964 as given in clause 6.1.2.

Covers (dust caps) may be provided to protect the port of the transceiver.

4.4 Materials

Materials which are not specified or which are not specifically described are left to the discretion of the manufacturer.

The material for the ferrule is Polyphenylene Sulphide (PPS) material with a Young's modulus of 20 GPa nominal and guide pins are of stainless steel. Alternative materials, which have compatible material properties, may be used as long as end face and performance requirements are met under all conditions as specified in this document.

4.5 Dimensions

Outline dimensions and other dimensions necessary to ensure intermateability or which affect performance are specified. All other dimensions are left to the discretion of the manufacturer. Where the mating face limit dimensions are not in agreement with EN 61754-7-1 interface, this is clearly stated.

4.6 Colour and marking

Marking of the product shall be in the following order of precedence:

a) identification of manufacturer;

b) manufacturing date code: year/week;

c) manufacturer’s part number;

d) variant identification number.

The recommended colour for the MPO plug and any exposed features of the transceiver is beige.

5 Variants

5.1 Terminated plug

The following variants are permitted: C01 variant is for A1a.3 fibre (50 µ) reinforced cable.

Table 1 — Plug variants

Variant No.	Fibre/Cable mm	Structure	Note
C02F	ø 3,0- 3,5	Reinforced cable	Without pins
C04F	ø 2,0- 2,8	Reinforced cable	Without pins

5.2 Identification of variants

Table 2 — Identification of plug variants

Variant No.	Performance grade (Attenuation/return loss)	Identification number
C02F	MR	EN 50377-15-1-C02F-MR
C04F	MR	EN 50377-15-1-C04F-MR

Table 3 — Identification of transceiver variants

Variant No.	Transmission capability	Identification number
T01	4 × 10,312 5 Gb/s-	EN 50377-18-1-T01