

Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications -- Part 11-1: Type MF terminated on IEC 60793-2-50 Category B1.1 and B1.3 singlemode fibre for Category C

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English version

**Connector sets and interconnect components
to be used in optical fibre communication systems -
Product specifications -
Part 11-1: Type MF terminated on IEC 60793-2-50
category B1.1 and B1.3 singlemode fibre for category C**

Jeux de connecteurs et composants
d'interconnexion à utiliser
dans les systèmes de communication
par fibres optiques -
Spécifications de produit -
Partie 11-1: Type MF raccordé
sur une fibre unimodale
des catégories B1.1 et B1.3
de la CEI 60793-2-50
pour la catégorie C

Steckverbindersätze
und Verbindungselemente
für Lichtwellenleiter-
Datenübertragungssysteme -
Produktnormen -
Teil 11-1: Bauart MF zum Anschluss
an Einmodenfasern der Kategorien
B1.1 und B1.3 nach IEC 60793-2-50
für Kategorie C

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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

This European Standard was prepared by the Technical Committee CENELEC TC 86BXA, Fibre optic interconnect, passive and connectorised components.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50377-11-1 on 2007-09-01.

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) 2008-09-01
 - latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2010-09-01
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Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications			
Part 11-1: Type MF terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre for category C			
Description		Performance	
Coupling mechanism:	back plane	Application:	For use backplane application (test severities derived from IEC cat C)
Configuration:	plug and socket	Attenuation grades: (Random mated)	B: $\leq 0,12$ dB mean $\leq 0,25$ dB for > 97 % of measurements C: $\leq 0,25$ dB mean $\leq 0,50$ dB for > 97 % of measurements
Fibre Category:	EN 60793-2-50 type B1.1 and B1.3	Return loss grade:	2: ≥ 45 dB
Cable Type:	See Table 3		
Related documents:			
EN 50173	Information technology – Generic cabling systems		
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 60793-2	Optical fibres – Part 2: Product specifications – General (IEC 60793-2)		
EN 61753-1	Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards (IEC 61753-1)		
EN 61754-5	Fibre optic connector interfaces – Part 5: Type MT connector family (IEC 61754-5)		
EN 61755-1	Fibre optic connector optical interfaces – Part 1: Optical interfaces for single mode non-dispersion shifted fibres – General and guidance (IEC 61755-1)		
EN 61755-3-3 ¹⁾	Fibre optic connector optical interfaces – Part 3-3: Optical interface angled PC endface rectangular ferrule, single mode fibres (IEC 61755-3-3)		

¹⁾ At draft stage.

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1 Scope

1.1 Product definition

This specification contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements which a terminated and assembled singlemode MF 4-fold-connector set (for backplane applications) must meet in order to be categorised as an EN standard product.

Since different variants and grades of performance are permitted, product marking details are given in 3.5.

1.2 Intermateability

Although all products conforming to the requirements of this standard will intermate, the resulting level of random attenuation performance will only be ensured in accordance with Table 1. The intention is that this will be true irrespective of the manufacturing source(s) of the product.

When intermating plug variants having different attenuation grades, the resulting level of attenuation can not be assured to be any better than the worst attenuation grade.

The intermating of a grade C plug with a grade B plug will result in an uncertain level of random attenuation performance.

Table 1 - Ensured level of random attenuation

Plug variant/Attenuation grade	C	B
C	C	C
B	C	B

1.3 Operating environment

The tests selected combined with the severities and durations are derived from the category C environment, according to EN 61753-1.

1.4 Reliability

Whilst the anticipated service life expectancy of the product in this environment is 20 years, compliance with this specification does not guarantee the reliability of the product. This should be predicted using a recognised reliability assessment programme.

1.5 Quality assurance

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

2 Normative references

The following referenced documents are indispensable for the application 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 60793-2-50	Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres (IEC 60793-2-50)
EN 60794-2-30	Optical fibre cables – Part 2-30: Indoor optical fibre cables – Family specification for optical fibre ribbon cables (IEC 60794-2-30)
EN 61076-4-100	Connectors for electronic equipment – Part 4-100: Printed board connectors with assessed quality – Detail specification for two-part connector modules having a grid of 2,5 mm for printed boards and backplanes (IEC 61076-4-100)
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	Part 2-2: Tests – Mating durability (IEC 61300-2-2)

EN 61300-2-17	Part 2-17: Tests – Cold (IEC 61300-2-17)
EN 61300-2-18	Part 2-18: Tests – Dry heat - High temperature endurance (IEC 61300-2-18)
EN 61300-2-19	Part 2-19: Tests – Damp heat (steady state) (IEC 61300-2-19)
EN 61300-2-22	Part 2-22: Tests – Change of temperature (IEC 61300-2-22)
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 61300-3-6	Part 3-6: Examinations and measurements – Return loss (IEC 61300-3-6)
EN 61300-3-30	Part 3-30: Examinations and measurements – Polish angle and fibre position on single ferrule multifibre connectors (IEC 61300-3-30)
EN 61300-3-34	Part 3-34: Examinations and measurements – Attenuation of random mated connectors (IEC 61300-3-34)
EN 61753-1	Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards (IEC 61753-1)
EN 61754-5	Fibre optic connector interfaces – Part 5: Type MT connector family (IEC 61754-5)

3 Description

The MF connector is a single position plug connector set of plug and socket configuration characterised by a rectangular, spring loaded butting ferrule with up to 12 fibres and a backplane coupling mechanism. The optical alignment mechanism of the connectors is of a precision pin and hole type.

3.1 Plug

The plug features a rectangular thermo plastic composite ferrule and a latched coupling mechanism.

A cover (dustcap) to protect the ferrule endface when the connector is in the unmated condition shall be provided.

3.2 Housings

The housings B2 and B3 (see Annex B) have no role in the final alignment mechanism. The mounting style is:

EN 61076-4-100	Back plane	MF-A/MF-B
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See Annex A.

Covers (dustcaps) shall be provided to protect each port of the adaptor.

3.3 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 which are of stainless steel. Alternative materials, which have compatible material properties, may be used as long as endface and performance requirements are met under all conditions as specified in this document.

3.4 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 an IEC interface this is clearly stated.