

**SLOVENSKI STANDARD**  
**SIST EN 50377-3-1:2008**

01-junij-2008

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 SIST EN 50377-3-1:2004

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Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications - Part 3-1: Type SG terminated on IEC 60793-2-10 Category A1a, A1b or equivalent multimode fibre for Category C

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Steckverbindersätze und Verbindungsbaueteile für Lichtwellenleiter-Datenübertragungssysteme - Produktnormen - Teil 3-1: Bauart SG zum Anschluss an Mehrmodenfasern der Kategorien A1a, A1b oder dergleichen nach IEC 60793-2-10 für Kategorie C

Jeux de connecteurs et composants d'interconnexion a utiliser dans les systemes de communication par fibres optiques - Spécifications de produits - Partie 3-1: Type SG, reliés a des fibres multimodales des catégories A1a, A1b ou équivalent de la CEI 60793-2-10, pour usage en catégorie C

**Ta slovenski standard je istoveten z: EN 50377-3-1:2008**

**ICS:**

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**SIST EN 50377-3-1:2008 en,fr**

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English version

**Connector sets and interconnect components  
to be used in optical fibre communication systems -  
Product specifications -  
Part 3-1: Type SG terminated on IEC 60793-2-10 category A1a, A1b  
or equivalent multimode fibre for category C**

Jeux de connecteurs et composants  
d'interconnexion à utiliser  
dans les systèmes de communication  
par fibres optiques -  
Spécifications de produits -  
Partie 3-1: Type SG, reliés à des fibres  
multimodales des catégories A1a, A1b  
ou équivalent de la CEI 60793-2-10  
pour usage en catégorie C

Steckverbindersätze  
und Verbindungselemente  
für Lichtwellenleiter-  
Datenübertragungssysteme -  
Produktnormen -  
Teil 3-1: Bauart SG zum Anschluss an  
Mehrmodenfasern der Kategorien  
A1a, A1b oder dergleichen nach  
IEC 60793-2-10 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 50377-3-1 on 2007-12-01.

This European Standard supersedes EN 50377-3-1:2001.

This document is updated to include the performance of the adaptor, and patch cord next to the pigtailed connector as defined in the previous version. It also includes latest attenuation and return loss grades as specified in IEC.

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) 2008-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2010-12-01

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**Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications**

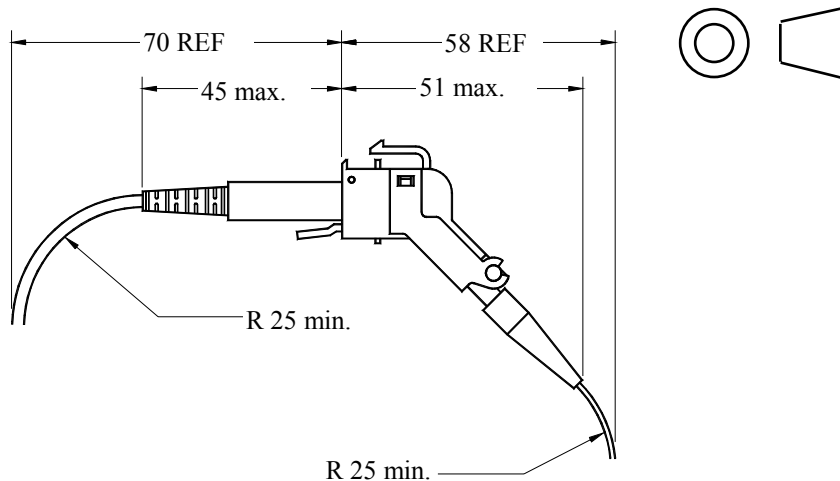
**Part 3-1: Type SG terminated on IEC 60793-2-10 category A1a, A1b or equivalent multimode fibre for category C**

Description		Performance	
Coupling mechanism:	Latched push-pull	Application:	For use in an IEC category C environment
Configuration:	Plug/socket	Attenuation grade: (random mate)	M: $\leq 0,75$ dB 95 % $\leq 0,5$ dB Mean $\leq 0,35$ dB
Fibre category:	EN 60793-2-10 Types A1a & A1b	Return loss grade: (random mate)	R: $\geq 20$ dB
Cable type:	See Table 2		

Related documents:

- EN 50173 Information technology - Generic cabling systems
- 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 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 61753-022-2 Fibre optic interconnecting devices and passive components performance standard - Part 022-2: Fibre optic connectors terminated on multimode fibre for category C - Controlled environment (IEC 61753-022-2)
- EN 186000-1 Generic Specification: Connector sets for optical fibres and cables - Part 1: Requirements, test methods and qualification approval procedures
- ISO/IEC 11801 Information technology - Generic cabling for customers premises

Outline and maximum dimensions:



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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 multimode V-groove alignment SG connector set (plug/socket) must meet in order for it to be categorised as an EN standard product. Product marking details are given in 3.5.

### 1.2 Intermateability

Products conforming to the requirements of this specification will intermate and give the specified level of random attenuation and random return loss performance provided the same fibre core size is used. 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 severities and durations are representative of an indoor environment typically, but not limited to, that found in generic cabling on commercial premises as defined in EN 50173 and ISO/IEC 11801 and specified as IEC category C.

### 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 50173	Information technology - Generic cabling systems
EN 60793-2-10	Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres (IEC 60793-2-10)
EN 61300 series	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures (IEC 61300 series)
EN 61300-2-1	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 61300-2-4	Part 2-4: Tests - Fibre/cable retention (IEC 61300-2-4)
EN 61300-2-6	Part 2-6: Tests - Tensile strength of coupling mechanism (IEC 61300-2-6)



EN 61300-2-12	Part 2-12: Tests - Impact (IEC 61300-2-12)
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 61300-2-42	Part 2-42: Tests - Static side load for connectors (IEC 61300-2-42)
EN 61300-2-44	Part 2-45: Tests - Durability test by water immersion (IEC 61300-2-44)
EN 61300-3-6	Part 3-6: Examinations and measurements - Return loss (IEC 61300-3-6)
EN 61300-3-34	Part 3-34: Examinations and measurements - Attenuation of random mated connectors (IEC 61300-3-34)
EN 61300-3-37	Part 3-37: Examinations and measurements - Endface angle of angle-polished optical fibres (IEC 61300-3-37)
EN 186000-1:1993	Generic Specification: Connector sets for optical fibres and cables - Part 1: Requirements, test methods and qualification approval procedures
IEC/PAS 61300-3-43	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-43: Examinations and measurements - Mode transfer function measurement for fibre optic sources
ISO/IEC 11801	Information technology - Generic cabling for customer premises

### 3 Description

The SG connector is a single position duplex plug connector set of plug/socket configuration characterised by a pair of contacting fibres of 125 µm typical diameter and a latched push - pull coupling mechanism. The optical alignment mechanism of the connector is a V-groove. All intermating surfaces shall be moulded from a thermoplastic polymer with a minimum flexural modulus of 1 900 MPa at 22 °C.

#### 3.1 Plug

The plug features a rectangular housing and fibre positioning and securing mechanism together with a coupling/de-coupling latch. It has an asymmetrical profile which controls the relative position of transmit and receive fibres between mated connectors.

An integral cover (dustcap) to protect the fibre endfaces when the plug is in the unmated condition shall be provided. The operation of the cover shall be automatic as the plug is inserted into and removed from the socket.

### 3.2 Socket

The socket incorporates a fibre securing mechanism and two V-grooves for fibre alignment. A boot is provided to support the cable exiting the rear of the socket. The mounting style is by a “keystone” latch.

An integral door (dustflap) to protect the fibre endfaces when the socket is in the unmated condition shall be provided. The operation of the door shall be automatic as the plug is inserted into and removed from the socket.

### 3.3 Materials

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

### 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 in agreement with an IEC Interface Standard this is clearly stated.

### 3.5 Colour and marking

Marking of the product shall be in accordance with 2.6.2 of EN 186000-1:1993 in the following order of precedence:

- identification of manufacturer: (standards.iteh.ai)
- manufacturing date code: year/week;
- manufacturers part number: [SIST EN 50377-3-1:2008](https://standards.iteh.ai/catalog/standards/sist/849c46ab-bb10-473e-842f-447a23e1e215/sist-en-50377-3-1-2008)
- variant identification number. [447a23e1e215/sist-en-50377-3-1-2008](https://standards.iteh.ai/catalog/standards/sist/849c46ab-bb10-473e-842f-447a23e1e215/sist-en-50377-3-1-2008)

The following colour coding scheme is preferred:

**Table 1 – Preferred colour coding scheme**

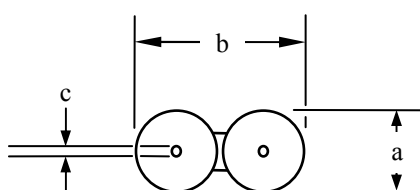
Socket	Plug
White/Beige/Black	White/Beige/Black

## 4 Variants

### 4.1 Terminated plug

The following fibre/cable variants are permitted:

**Variant nos.** A01, A02, A03 and A04



**Table 2 – Plug fibre/cable variants**

Ref.	Fibre dimensions		Cable dimensions			Note	
	min.	mm	max.	min.	mm		max.
a	-		-	2,3		2,7	1
b				4,8		5,2	1
c	0,230		0,260				2

NOTE 1 Duplex cable “zip cord” construction.

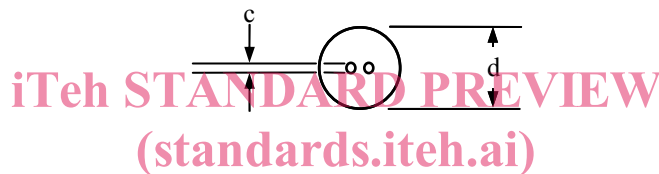
NOTE 2 Primary coated fibre.

NOTE 3 Variant A01 is for type A1a fibre, variant A02 is for type A1b fibre, variants A03 and A04 are for polymer coated fibre meeting the dimensional requirements of IEC type A1a and A1b fibre respectively.

#### 4.2 Terminated socket

The following fibre/cable variants are permitted:

**Variant nos.** B01 and B02



**Table 3 – Socket fibre/cable variants**

Ref.	Fibre dimensions		Cable dimensions			Note	
	min.	mm	max.	min.	mm		max.
c	0,230		0,260				2
d				0,850		0,950	

NOTE 1 Variant B01 is for type A1a fibre, variant B02 is for type A1b fibre.

NOTE 2 Primary coated fibre.

#### 4.3 Identification of variants

**Table 4 – Plug variants**

Variant number	Identification number
A01	50377-3-1-A01-MR
A02	50377-3-1-A02-MR
A03	50377-3-1-A03-MR
A04	50377-3-1-A04-MR