

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 category A1a and A1b
multimode fibre**

The European Standard EN 50377-3-1:2001 has the status of a
British Standard

ICS 33.180.20

National foreword

This British Standard is the official English language version of EN 50377-3-1:2001.

The UK participation in its preparation was entrusted by Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/2, Fibre optic interconnecting devices and passive components, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 09 November 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 23 and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

© BSI 09 November 2001

ISBN 0 580 38628 7

**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
category A1a and A1b multimode fibre**

Jeux de connecteurs et composants
d'interconnexion à utiliser dans les
systèmes de communication par fibres
optiques -
Spécifications de produit
Partie 3-1: Type SG câblés sur fibres
multimodales de catégorie A1a et A1b de
la CEI 60793-2

Steckverbinder zur Verwendung in
Lichtwellenleiter-Kommunikations-
systemen -
Produktnormen
Teil 3-1: Bauart SG zum Anschluß von
Mehrmodenfasern nach IEC 60793-2,
Kategorie A1a und A1b

This European Standard was approved by CENELEC on 2000-04-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 connectors.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 186540 on 2000-04-01. According to the new numbering scheme accepted by the 107th Technical Board of CENELEC, the standard was renamed EN 50377-3-1.

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) 2002-03-01
 - latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2003-04-01
-

**PRODUCT SPECIFICATION FOR CONNECTOR SET TO BE USED IN
MULTIMODE OPTICAL FIBRE COMMUNICATION SYSTEMS**

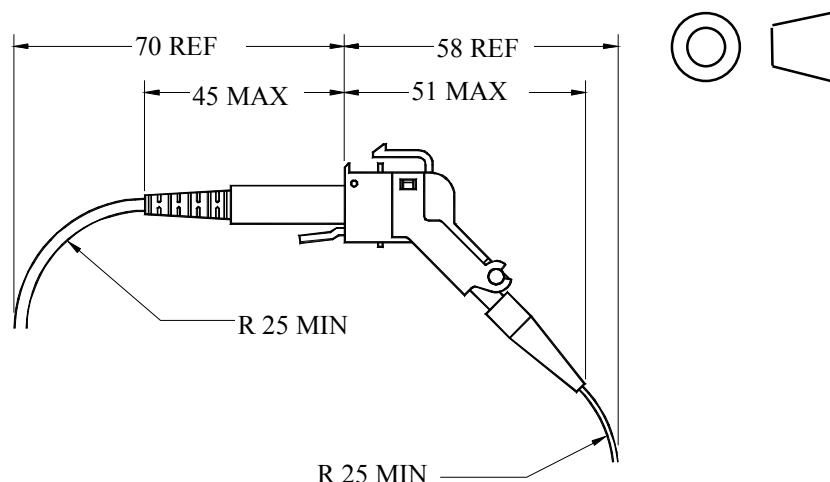
Type: **SG terminated on IEC 60793-2 Category A1a, A1b or equivalent fibre**

Description		Performance	
Coupling mechanism:	latched push-pull	Application:	For use in an IEC Category C Environment
Configuration:	plug/socket	Attenuation Grade:	M: $\leq 0,75\text{dB}$ 95% $\leq 0,5\text{dB}$
Fibre Category:	IEC 60793-2 type A1a and A1b see para 3	Return Loss Grade:	R: $\geq 20\text{dB}$ (Random Mate)
Cable Type	see table 2		

Related documents:

EN 186000	Generic Specification for Optical Fibre Connectors
EN 61300-	Basic Test and Measurement Procedures
EN 50173	Information Technology - Generic Cabling Systems
IEC 60793-2	Optical Fibres - Part 2 Product Specifications
IEC 61753	Performance Standard - Part 1 General and Guidance
IEC 61753-3-3	Performance Standard - Part 2.3 Fibre optic connectors terminated on multimode fibre Category C controlled environment
IEC 60794-2	Optical Fibre Cables - Part 2 Product Specifications
ISO/IEC 11801	Information Technology - Generic Cabling for Customers Premises

Outline and maximum dimensions:



CONTENTS

1	Scope	5
1.1	Product definition	5
1.2	Intermateability	5
1.3	Operating environment	5
1.4	Reliability	5
1.5	Quality assurance	5
2	Related documents	5
3	Description	6
3.1	Plug	6
3.2	Socket	6
3.3	Materials	6
3.4	Dimensions	6
3.5	Colour and marking	6
4	Variants	7
4.1	Terminated plug	7
4.2	Terminated socket	7
4.3	Identification of variants	8
5	Dimensional requirements	8
5.1	Outline dimensions	8
5.1.1	Plug variants	8
5.1.2	Socket variants	9
5.2	Mating face and other limit dimensions	10
5.2.1	Plug	10
5.2.2	Plug fibre endtip geometry after termination	12
5.2.3	Socket	13
5.2.4	Socket fibre endtip geometry after termination	15
6	Tests	16
6.1	Sample size	16
6.2	Test and measurement methods	16
6.3	Test sequence	16
6.4	Pass/fail criteria	16
7	Test report	16
8	Testing requirements	17
8.1	Dimensional requirements	17
8.2	Optical performance requirements	17
8.3	Mechanical performance requirements	18
8.4	Environmental performance requirements	21
	Annex A - Sample size and product sourcing requirements	23

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 Related documents

EN 186000	Generic Specification for Optical Fibre Connectors
EN 61300-	Basic Test and Measurement Procedures
EN 50173	Information Technology - Generic Cabling Systems
IEC 60793-2	Optical Fibres - Part 2 Product Specifications
IEC 61753	Performance Standard - Part 1 General and Guidance
IEC 61753-3-3	Performance Standard - Part 2.3 Fibre optic connectors terminated on multimode fibre Category C controlled environment
IEC 60794-2	Optical Fibre Cables - Part 2 Product Specifications
ISO/IEC 11801	Information Technology Generic - Cabling for Customers 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 1900 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 in the following order of precedence:

- a. Identification of manufacturer
- b. Manufacturing date code : year/week
- c. Manufacturers part number
- d. Variant identification number