



BSI Standards Publication

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

Part 4-3: Type SC/APC simplex 9° terminated on EN 60793-2-50 of type B-652.D and B-657.A singlemode fibre with full zirconia ferrule, category OP

National foreword

This British Standard is the UK implementation of EN 50377-4-3:2022.

The UK participation in its preparation was entrusted to Technical Committee GEL/86/2, Fibre optic interconnecting devices and passive components.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Connector sets and interconnect components to be used in
optical fibre communication systems - Product specifications -
Part 4-3: Type SC/APC simplex 9° terminated on EN 60793-2-50
of type B-652.D and B-657.A singlemode fibre with full zirconia
ferrule, category OP

Jeux de connecteurs et composants d'interconnexion à
utiliser dans les systèmes de communication par fibres
optiques - Spécifications de produit - Partie 4-3: Type
SC/APC simplex 9° raccordé sur fibres unimodales de
types B-652.D et B-657.A de l'EN 60793-2-50 avec une
ferrule en zircone pleine, catégorie OP

Steckverbindersätze und Verbindungsbaulemente für
Lichtwellenleiter- Datenübertragungssysteme -
Produktnormen - Teil 4-3: Bauart SC-APC-Simplex, 9°, zum
Anschluss an Einmodenfasern der Typen B-652.D und B-
657.A nach EN 60793-2-50 mit Zirkoniumdioxid-Ferrule für
die Kategorie OP

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European foreword

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The following dates are fixed:

- latest date by which this document has to be (dop) 2023-06-06
implemented at national level by publication of
an identical national standard or by
endorsement
- latest date by which the national standards (dow) 2025-06-06
conflicting with this document have to be
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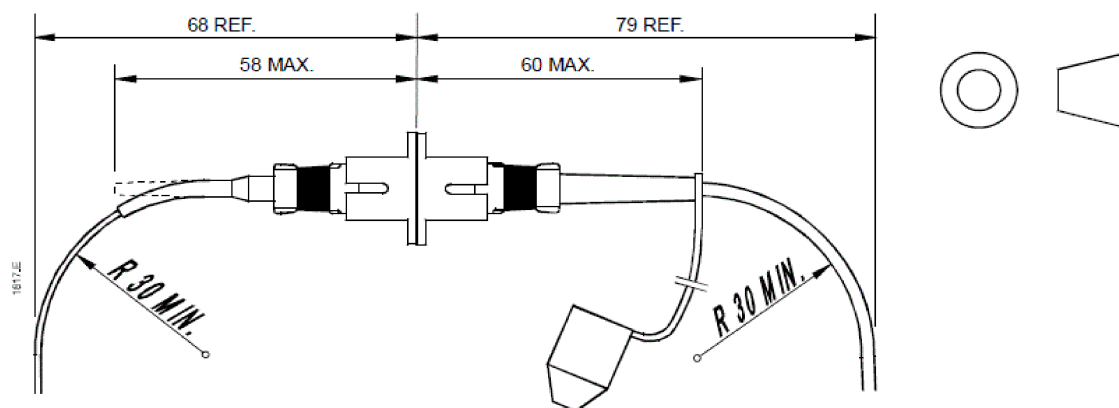
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Introduction

Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications			
Part 4-3: Type SC/APC simplex 9° terminated on EN 60793-2-50 of type B-652.D and B-657.A singlemode fibre with full zirconia ferrule, category OP			
Description		Performance	
Coupling mechanism:	Push-pull	Application:	For use in EN Category OP (outdoor protected environment)
Configuration:	Plug/adaptor/plug	Attenuation grade: (random mate)	B: $\leq 0,12$ dB mean $\leq 0,25$ dB for 97 % of measurements
Fibre category:	EN 60793-2-50 Types — B-652.D and B-657.A		
Cable type:	See Table 3	Return loss grade: (random mate)	1: ≥ 60 dB mated ≥ 55 dB unmated
Related documents: 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 IEC 61753-1:2018 Fibre optic interconnecting devices and passive components performance standard — Part 1: General and guidance (IEC 61753-1:2018) EN IEC 61754-4 Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces — Part 4: Type SC connector family (IEC 61754-4) 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) ETSI EN 300 019 series Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment ETSI TS 100 671 Transmission and Multiplexing (TM); Passive optical components; Optical fibre connectors for single mode optical fibre communication systems; Common requirements and conformance testing			

Outline and maximum dimensions:



1 Scope

1.1 Product definition

This document contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements which a connector terminated with cylindrical zirconia 9° angled PC ferrule and assembled singlemode resilient alignment sleeve SC-APC simplex connector set (plug/adaptor/plug), adaptor and patchcord meet in order for it to be categorized as an EN standard product. This document is intended to replace CECC 86 265-803.

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

1.2 Intermateability

Products conforming to the requirements of this document are intended to intermate, and it is expected that the specified level of random attenuation performance will be met. 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 a category OP environment described in EN IEC 61753-1.

1.4 Reliability

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

1.5 Quality assurance

Compliance with this document does not guarantee the manufacturing consistency of the product. This is expected to 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 IEC 61300-2-4, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4: Tests - Fibre/cable retention* (IEC 61300-2-4)

EN 61300-2-5, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-5: Tests – Torsion* (IEC 61300-2-5)

EN 61300-2-6, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-6: Tests - Tensile strength of coupling mechanism* (IEC 61300-2-6)

EN 61300-2-7, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-7: Tests - Bending moment* (IEC 61300-2-7)

EN 61300-2-12, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-12: Tests - Impact (IEC 61300-2-12)*

EN 61300-2-17, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-17: Tests – Cold (IEC 61300-2-17)*

EN 61300-2-18, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-18: Tests - Dry heat - High temperature endurance (IEC 61300-2-18)*

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 61300-2-26, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-26: Tests - Salt mist (IEC 61300-2-26)*

EN 61300-2-27, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-27: Tests - Dust - Laminar flow (IEC 61300-2-27)*

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 IEC 61300-2-46, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-46: Tests - Damp heat cyclic (IEC 61300-2-46)*

EN 61300-2-50, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-50: Tests - Fibre optic connector proof test with static load - Singlemode and multimode (IEC 61300-2-50)*

EN 61300-3-6, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-6: Examinations and measurements - Return loss (IEC 61300-3-6)*

EN 61300-3-10, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-10: Examinations and measurements - Gauge retention force (IEC 61300-3-10)*

EN 61300-3-34, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-34: Examinations and measurements - Attenuation of random mated connectors (IEC 61300-3-34)*

EN 61300-3-42, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-42: Examinations and measurements - Attenuation of single mode alignment sleeves and or adaptors with resilient alignment sleeves (IEC 61300-3-42)*

EN 61300-3-47, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-47: Examinations and measurements - End face geometry of PC/APC spherically polished ferrules using interferometry (IEC 61300-3-47)*

ISO 8015, *Geometrical product specifications (GPS) - Fundamentals - Concepts, principles and rules*

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 <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 Description

4.1 General

The SC-APC connector is a single position plug connector set of plug/adaptor/plug configuration characterized by a cylindrical, spring loaded butting ferrule of 2,5 mm nominal diameter and a latched push-pull coupling mechanism. The optical alignment mechanism of the connectors is of a resilient sleeve style.

4.2 Plug

The plug features a cylindrical zirconia ceramic ferrule and a push-pull coupling mechanism. The plug housing has a single male key, which is used to limit the relative rotation between mated plugs. A cover (dust cap) shall be provided to protect the ferrule end face when the connector is in the unmated condition.

4.3 Adaptor

The adaptor has a zirconia ceramic resilient alignment sleeve. The mounting style is a rectangular flange - simplex.

Covers (dust caps) are provided to protect each port of the adaptor.

4.4 Materials

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

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 an IEC Interface Standard this is clearly stated.

4.6 Colour and marking

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

- identification of manufacturer;
- manufacturing date code: year/week;
- manufacturers part number;
- variant identification number.

The preferred colour scheme is given in Table 1.

Table 1 — Preferred colour scheme

Delatch housing SC-APC plug	Adaptor
Green, RAL 6029	Green, RAL 6029

5 Variants

5.1 Terminated plug

The defined fibre/cable variants are given in Table 2.

Table 2 — Plug variants

E	N	5	0	3	7	7	-	4	-	3	-	*	*	-	B	1
Variant No.		Fibre/cable mm		Structure		Note										
01		0,9 ± 0,2		Buffered fibre		9 degrees										
02		1,8 ± 0,2		Reinforced cable		9 degrees										
03		2,0 ± 0,2		Reinforced cable		9 degrees										
04		2,4 ± 0,2		Reinforced cable		9 degrees										
05		3,0 ± 0,2		Reinforced cable		9 degrees										
Variant				Attenuation grade												
B				B												
Code				Return loss grade												
1				1												

5.2 Adaptor

The defined adaptor variants are given in Table 3.