Industrial connector sets and interconnect components to be used in optical fibre control and communication systems – Product specifications – Part 3-1: Type ODVA APC terminated on EN 60793-2-50 category B1.1 and B1.3 singlemode fibre to meet the requirements of category I (industrial environments) as specified in EN 50173-1 and IEC 61753-1-3

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50516-3-1:2014 sisaldab Euroopa standardi EN 50516-3-1:2014 ingliskeelset teksti.	This Estonian standard EVS-EN 50516-3-1:2014 consists of the English text of the European standard EN 50516-3-1:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 06.06.2014.	Date of Availability of the European standard is 06.06.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 33.180.20

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50516-3-1

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English Version

Industrial connector sets and interconnect components to be used in optical fibre control and communication systems - Product specifications - Part 3-1: Type ODVA APC terminated on EN 60793-2-50 category B1.1 and B1.3 singlemode fibre to meet the requirements of category I (industrial environments) as specified in EN 50173-1 and IEC 61753-1-3

Industrie-Steckverbindersätze und Verbindungsbauelemente für Lichtwellenleiter-Steuerungs- und Datenübertragungssysteme - Produktnormen - Teil 3-1: Industriesteckverbinder der Bauart ODVA-APC zum Anschluss an Einmodenfasern der Typen B1.1 und B1.3 nach EN 60793-2-50 für die Kategorie I (Industrieumgebung) nach den Festlegungen in EN 50173-1 und IEC 61753-1-3

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 50516-3-1:2014 E

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Figures

Tables

Foreword

This document (EN 50516-3-1:2014) 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)	2014-12-23
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2016-12-23

EN 50516, *Industrial connector sets and interconnect components to be used in optical fibre control and communication systems — Product specifications*, is currently divided in the following parts:

– *Part 1-1: Type SC-RJ PC industrial terminated on EN 60793-2-10 category A1a and A1b multimode fibre to meet the requirements of category I (industrial environments) as specified in IEC/PAS 61753-1-3*;

– *Part 2-1: Type ODVA PC industrial terminated on EN 60793-2-10 category A1a and A1b multimode fibre to meet the requirements of category I (industrial environments) as specified in EN 50173-1 and IEC 61753-1-3*;

– *Part 3-1: Type ODVA APC terminated on EN 60793-2-50 category B1.1 and B1.3 singlemode fibre to meet the requirements of category I (industrial environments) as specified in EN 50173-1 and IEC 61753-1-3* [the present document].

CENELEC draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning ODVA industrial connectors (see declaration in Annex E).

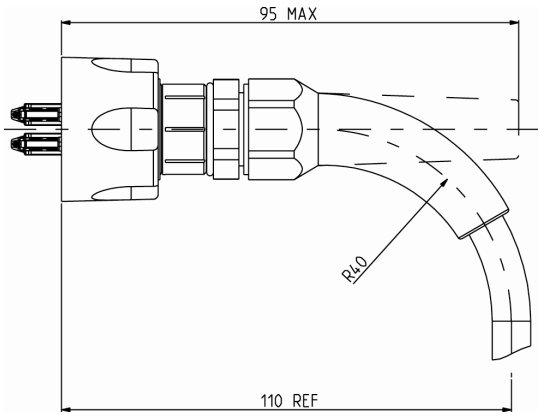
Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Industrial connector sets and interconnect components to be used in optical fibre control and communication systems — Product specifications	
Part 3-1: Type ODVA APC terminated on EN 60793-2-50 category B1.1 and B1.3 singlemode fibre to meet the requirements of category I (industrial environments) as specified in EN 50173-1 and IEC 61753-1-3	
Description	**Performance**
Coupling mechanism: Twist and lock with sealing	Application: For the use in category I (industrial environment)
Configuration: Plug / adaptor / with one side of the configuration having a seal and a protective shell	Attenuation (random mate) factory terminated: B: ≤ 0,12 dB mean ≤ 0,25 dB for > 97 % of measurements C: ≤ 0,25 dB mean ≤ 0,50 dB for > 97 % of measurements
Fibre category: EN 60793-2-50 Type B1.1 and B1.3	Attenuation (random mate) FSOC: C: ≤ 0,25 dB mean ≤ 0,50 dB for > 97 % of measurements
Cable type: See Table 3	Return loss: 1: ≥ 60 dB (mated) ≥ 55 dB (unmated)

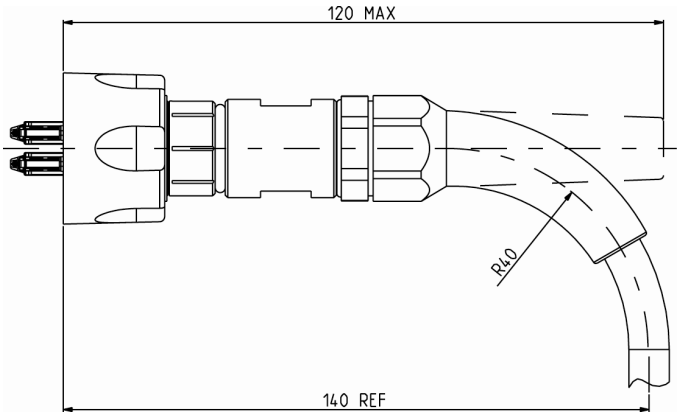
Related documents:	
EN 50173-1	Information technology — Generic cabling systems — Part 1: General requirements
EN 50173-3	Information technology — Generic cabling systems — Part 3: Industrial premises
EN 60529	Degrees of protection provided by enclosures (IP Code) (IEC 60529)
EN 60794-3	Optical fibre cables — Part 3: Sectional specification — Outdoor cables (IEC 60794-3)
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)
FprEN 61753-1-3 [1)]	Fibre optic interconnecting devices and passive components — Performance standard — Part 1-3: General and guidance for single-mode fibre optic connector and cable assembly for harsh industrial environment, Category I (IEC 61753-1-3:201X (86B/3496/CDV))
EN 61754-28	Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces — Part 28: Type LF3 connector family (IEC 61754-28)

1) At draft stage.

Outline and maximum dimensions: ODVA connector plug with protective shell in sealed adaptor.



factory terminated



FSOC

1 Scope

1.1 Product definition

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements which an ODVA (factory terminated) (Open DeviceNet Vendors Association) or ODVA fusion splice on connector (FSOC) terminated with cylindrical composite titanium APC ferrules with one side protected by an industrial housing, an adaptor fitted with resilient alignment sleeve and patchcord shall meet in order for it to be categorised as an EN standard product. The product is rated IP67.

Since different variants are permitted, product marking details are given in 3.6.

1.2 Intermateability

Products conforming to the requirements of this specification will inter mate and give the specified level of random attenuation and random return loss performance provided the same fibre type is used. The intention is that this will be true irrespective of the manufacturing source(s) of the product.

When intermating plug variants with different attenuation grades, the resulting level of attenuation cannot 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, specified as Category I, are intended to reflect, although they do not necessarily satisfy all the requirements of, the boundary conditions of $M_3I_3C_3E_3$.

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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 60068-2-60 Environmental testing — Part 2: Tests — Test Ke: Flowing mixed gas corrosion test (IEC 60068-2-60)

EN 60529 Degrees of protection provided by enclosures (IP Code) (IEC 60529)

EN 60874-1 Fibre optic interconnecting devices and passive components — Connectors for optical fibres and cables — Part 1: Generic specification (IEC 60874-1)

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 61300-2-4 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 61300-2-9 Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-9: Tests — Shock (IEC 61300-2-9)

EN 61300-2-10 Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-10: Tests — Crush resistance (IEC 61300-2-10)

EN 61300-2-12:2005 Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-12: Tests — Impact (IEC 61300-2-12:2005)

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 61300-2-34 Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-34: Tests — Resistance to solvents and contaminating fluids of interconnecting components and closures (IEC 61300-2-34)

EN 61300-2-35 Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-35: Tests — Cable nutation (IEC 61300-2-35)

EN 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)
IEC 61300-2-53[2)]	Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-53: Test — Degrees of protection provided by fibre optic enclosures (IP Codes 65 and 67)
EN 61300-3-1	Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-1: Examinations and measurements — Visual examination (IEC 61300-3-1)
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 61300-3-15	Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-15: Examinations and measurements — Dome eccentricity of a convex polished ferrule endface (IEC 61300-3-15)
EN 61300-3-16	Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-16: Examinations and measurements — Endface radius of spherically polished ferrules (IEC 61300-3-16)
EN 61300-3-23	Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-23: Examination and measurements — Fibre position relative to ferrule endface (IEC 61300-3-23)
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 61300-3-34	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 61300-3-35	Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-35: Examinations and measurements — Fibre optic connector endface visual and automated inspection (IEC 61300-3-35)
EN 61300-3-47[2)]	Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-47: Examinations and measurements — Endface geometry of PC/APC spherically polished ferrules using interferometry (IEC 61300-3-47)
EN 61754-28	Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces — Part 28: Type LF3 connector family (IEC 61754-28)

2) At draft stage.