Fibre management systems and protective housings to be used in optical fibre communication systems - Product specifications - Part 3-4: Wall box for splice to patchcord connections, for category C and A

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50411-3-4:2019 sisaldab Euroopa standardi EN 50411-3-4:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 50411-3-4:2019 consists of the English text of the European standard EN 50411-3-4:2019.
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 28.06.2019.	Date of Availability of the European standard is 28.06.2019.
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 50411-3-4

June 2019

ICS 33.180.20

English Version

Fibre management systems and protective housings to be used in optical fibre communication systems - Product specifications - Part 3-4: Wall box for splice to patchcord connections, for category C and A

Organiseurs et boîtiers de fibres à utiliser dans les systèmes de communication par fibres optiques - Spécifications de produits - Partie 3-4:Système de gestion de fibres, boîte murale pour connexion entre épissures et cordons de brassage, pour les catégories C et A

LWL-Spleißkassetten und -Muffen für die Anwendung in LWL-Kommunikationssystemen - Produktnorm - Teil 3-4: Fasermanagementsysteme, Wandkasten für Spleiß-Patchkabel-Verbindungen, für die Kategorie C und A

This European Standard was approved by CENELEC on 2019-05-20. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 50411-3-4:2019 E

Contents

European foreword

This document (EN 50411-3-4:2019) 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)	2020-05-20
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-05-20

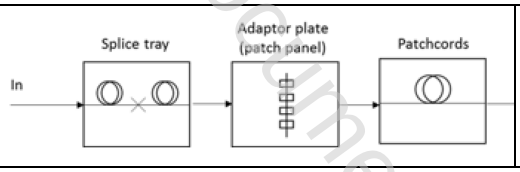
Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

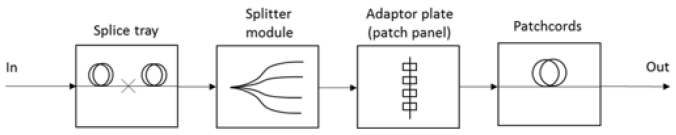
Fibre management systems and protective housings to be used in optical fibre communication systems – Product specifications -

Part 3–4: Wall or pole mounted box for splice to patchcord connections, for categories C and A

Description	Typical installation configuration	Typical mounting options
Wall or pole mounted box	Fibre distribution box	Vertical wall (external or internal) Pole or wall mounted (above ground) Inside street furniture (cabinet or pedestals)

Typical fibre management configurations





Operating service environments

Applications:	
Optical fibre cable networks. For indoor and for external above ground applications	EN IEC 61753-1 category C EN IEC 61753-1 category A

Modular adapter plates for the following connectors

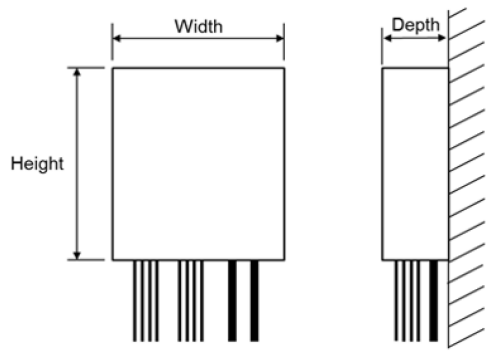
Connector type	Adapter size	Standard
SC	Simplex or duplex	EN 61754-4
LC	Simplex or duplex	EN 61754-20
LF3	Simplex or duplex	EN 61754-13
LSH	Simplex or duplex	EN 61754-15
MPO	Simplex	EN 61754-7

Fibre separation levels in Fibre Management System

Single circuit (1, 2 or 4 fibre splices per tray), Single element (6, 8 or 12 fibre splices per tray), Multiple element (up to 144 fibre splices per tray)	Single ribbon (1 ribbon splice per tray), Multiple ribbon (up to 12 ribbon splices per tray)

Box sizes and dimensions

Box sizes: 4, 8, 12, 24, 48, 72, 120 and 144 patchcord connections



Box sizes	Patchcord connections	Width (mm)	Height (mm)	Depth (mm)
A	4	170	300	50
B	8	280	450	100
C	12	280	450	100
D	24	465	450	225
E	48	465	500	225
F	72	465	550	225
G	120	465	600	225
H	144	465	650	225

NOTE Cables and patchcords enter the box from underneath.

1 Scope

1.1 Product definition

This document contains the dimensional, optical, mechanical and environmental performance requirements of a fully installed optical fibre wall or pole mounted box, in order for it to be categorized as a European Standard product.

The typical configuration is splicing of incoming fibres to optional splitters and/or to pigtails, connecting pigtail plugs on one side to patchcord plugs on the other side, using adapters.

A box is a protective housing containing a fibre management system with splice trays of various fibre separation levels and connector mounting plates. The box may contain one or more of the following:

— storage and routing for fibre and cable;

— uncut fibre cable storage;

— splice trays;

— adapters and connectors;

— passive optical devices (optical splitters or WDM).

A box can be installed on a vertical indoor or outdoor surface above ground level. If the box is required to be relocatable with cables attached, the following additional tests are performed:

— cable bending;

— cable torsion.

This document specifies the number of splice trays and splice/connector capacity for each fibre separation level. The maximum capacity is 144 connectors and splices. For housings with a higher number of splices and connectors, EN 50411-4-1 (street cabinets) can be used.

Boxes for fibre splices only are covered in EN 50411-3-1.

1.2 Operating environment

The tests selected, combined with the severity and duration, are representative of indoor and outside plants for above ground environments defined by EN IEC 61753-1:

— category C: Controlled (indoor) environment;

— category A: Aerial (above ground) environment.

1.3 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 can be predicted using a recognized reliability assessment programme.

1.4 Quality assurance

Compliance with this document does not guarantee the manufacturing consistency of the product. This can be maintained using a recognized quality assurance programme.

1.5 Allowed fibre and cable types

This box standard accommodates EN IEC 60793-2-50 singlemode fibres and EN 60793-2-10 A1-OM2 to A1-OM5 and A1-OM1 multimode fibres and all EN 60794 series optical fibre cables with various fibre capacities, types and designs.

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

EN 60695-11-10, *Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods (IEC 60695-11-10)*

EN 60754-1, *Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content (IEC 60754-1)*

EN 60793-2-10, *Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres (IEC 60793-2-10) (IEC 60793-2-10)*

EN IEC 60793-2-50, *Optical fibres - Part 2-50: Product specifications - Sectional specification for class B singlemode fibres (IEC 60793-2-50)*

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 61300-2-4, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4: Tests - Fibre/cable retention (IEC 61300-2-4)*

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

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

EN 61300-2-22, *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 61300-2-33, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-33: Tests - Assembly and disassembly of fibre optic mechanical splices, fibre management systems and closures (IEC 61300-2-33)*

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 61300-3-1, *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 61300-3-3, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-3: Examinations and measurements - Active monitoring of changes in attenuation and return loss (IEC 61300-3-3)*

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 IEC 61753-1, *Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards (IEC 61753-1)*

EN IEC 61756-1, *Fibre optic interconnecting devices and passive components - Interface standard for fibre management systems - Part 1: General and guidance (IEC 61756-1)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

• IEC Electropedia: available at http://www.electropedia.org/

• ISO Online browsing platform: available at http://www.iso.org/obp

3.1
live fibre or active fibre
fibre in an optical circuit or node that is carrying an optical signal

3.2
adapter
component in which two or more ferrules are aligned

Note 1 to entry: A ferrule is the fibre holding component part of the optical fibre connector plug

3.3
box
free breathing protective housing that is permanently attached to a vertical wall or pole

Note 1 to entry: A box is not specifically designed to allow cable movement (e.g. torsion, bending) at the cable ports during operation.

3.4
cable element
grouping of fibres in the cable sheath

3.5
fan-out
passive optical component providing a transition between a single ribbon or single element into individual fibres