

## SLOVENSKI STANDARD oSIST prEN IEC 60794-2-24:2023

01-februar-2023

# Optični kabli - 2-24. del: Notranji optični kabli - Podrobna specifikacija za večžilne večvlakenske kable za uporabo v kabelskih razdelilnih sestavih, zaključenih z večvlakenskimi natičnimi konektorji

Optical fibre cables - Part 2-24: Indoor optical fibre cables - Detailed specification for multiple multi-fibre unit cables for use in MPO connector terminated breakout cable assemblies

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en

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Fibres and cables

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## 86A/2239/CDV

## COMMITTEE DRAFT FOR VOTE (CDV)

	PROJECT NUMBER:		
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	86A/2162/CD, 86A/2236/CC		

IEC SC 86A : FIBRES AND CABLES		
SECRETARIAT:	SECRETARY:	
France	Mr Laurent Gasca	
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD:	
SC 86B		
	Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.	
FUNCTIONS CONCERNED:		
	QUALITY ASSURANCE SAFETY	
SUBMITTED FOR CENELEC PARALLEL VOTING	NOT SUBMITTED FOR CENELEC PARALLEL VOTING	
Attention IEC-CENELEC parallel voting		
CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.	<u>60794-2-24:2023</u> lards/sist/3e92b58f-fd5b-44fc-bad8-	
223c0e9cce8b/osist-pre The CENELEC members are invited to vote through the CENELEC online voting system.	n-iec-60794-2-24-2023	

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

### TITLE:

Optical fibre cables – Part 2-24: Indoor optical fibre cables – Detailed specification for multiple multi-fibre unit cables for use in MPO connector terminated breakout cable assemblies

PROPOSED STABILITY DATE: 2026

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52	INTERN	IATIONAL ELECTRC	TECHNICAL COMM	IISSION
53				
54 55		OPTICAL FIB	RE CABLES –	
50 57 58 59	Detailed specific conn	Part 2-24: Indoor op ation for multiple m ector terminated bro	otical fibre cables - ulti-fibre unit cable eakout cable assen	es for use in MPO nblies
60 61		FORE	WORD	
62 63 64 65 66 67 68 69 70 71	<ol> <li>The International Electron all national electrotech international co-operation this end and in addition Technical Reports, Pu Publication(s)"). Their pu in the subject dealt wi governmental organizati with the International C agreement between the</li> </ol>	technical Commission (IEC) is nical committees (IEC Nati n on all questions concerning to other activities, IEC pub- blicly Available Specification eparation is entrusted to tech th may participate in this p ons liaising with the IEC also organization for Standardizati two organizations.	s a worldwide organization fo onal Committees). The obj standardization in the electr lishes International Standard s (PAS) and Guides (her nical committees; any IEC N reparatory work. Internation participate in this preparati on (ISO) in accordance wit	r standardization comprising ect of IEC is to promote ical and electronic fields. To Is, Technical Specifications, eafter referred to as "IEC ational Committee interested ial, governmental and non- on. IEC collaborates closely h conditions determined by
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96 97	International Standard IEC 60794-2-24 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.			mittee 86A: Fibres and
98	The text of this standa	d is based on the followi	ng documents:	
		FDIS	Report on voting	
		86A/XX/FDIS	86A/XX/RVD	

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Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table. IEC CDV 60794-2-24/Ed1 © IEC 2022 - 5 -

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102 This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in the IEC 60794 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

105 The committee has decided that the contents of this document will remain unchanged until the 106 stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to 107 the specific document. At this date, the document will be

- 108 reconfirmed,
- withdrawn,
- 110 replaced by a revised edition, or
- 111 amended.
- 112
- 113

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11 <del>4</del> 115 116	OPTICAL FIBRE CABLES –			
117 118 119 120 121 122	Part 2-24: Indoor optical fibre cables – Detailed specification for multiple multi-fibre unit cables for use in MPO connector terminated breakout cable assemblies			
123	1 Scope			
124 125	This part of IEC 60794 is a detail specification and specifies indoor multiple multi-fibre unit cables for use in MPO (Multi-fibre Push On) connector terminated breakout cable assemblies.			
126	2 Normative references			
127 128 129 130	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.			
131 132	IEC 60793-1-20, Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre geometry			
133 134	IEC 60793-1-21, Optical fibres – Part 1-21: Measurement methods and test procedures – Coating geometry			
135	IEC 60793-2, Optical fibres – Part 2: Product specifications – General			
136 137	IEC 60793-2-10, Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres			
138 139	IEC 60793-2-50, Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres			
140	IEC 60794-1-1, Optical fibre cables – Part 1-1: Generic specification – General			
141 142	IEC 60794-1-2, Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures – General guidance			
143 144	IEC 60794-1-21, Optical fibre cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical tests methods			
145 146	IEC 60794-1-22, Optical fibre cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental test methods			
147 148	IEC 60794-1-31, Optical fibre cables - Part 1-31: Generic specification - Optical cable elements - Optical fibre ribbon			
149	IEC 60793-1-40, Optical fibres - Part 1-40: Attenuation measurement methods			
150	IEC 60793-1-46, Optical fibres – Part 1-46: Monitoring of changes in optical transmittance			
151	IEC 60794-2, Optical fibre cables – Part 2: Indoor cables – Sectional specification			

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### 86A/2239/CDV

- IEC 60794-2-20, Optical fibre cables Part 2-20: Indoor cables Family specification for 152 multi-fibre optical cables 153
- IEC 60794-2-23, Optical fibre cables Part 2-23: Indoor optical fibre cables Detailed 154 specification for multi-fibre cables for use in MPO connector terminated cable assemblies 155
- IEC 60811-202, Electric and optical fibre cables Test methods for non-metallic materials 156 Part 202: General tests – Measurement of thickness of non-metallic sheath 157
- IEC 60811-203, Electric and optical fibre cables Test methods for non-metallic materials 158 Part 203: General tests – Measurement of overall dimensions 159

#### **Terms and definitions** 3 160

- For the purposes of this document, the terms and definitions given in IEC 60794-1-1 apply. 161
- ISO and IEC maintain terminological databases for use in standardization at the following 162 163 addresses:
- IEC Electropedia: available at http://www.electropedia.org/ 164 •
- ISO Online browsing platform: available at http://www.iso.org/obp 165 •
- 3.1 166
- multi-fibre unit 167
- cable element in cable core that contains and packages multiple coated fibres. A multi-fibre 168 unit might be: 169
- ----- a sheath/tube construction, loosely or not; 170
- —— a fibre bundle with tie yarn; 171
- —— a ribbon structure, in accordance with IEC 60794-1-31: 172
- other possible constructions. 173

#### Construction 174 4

#### 4.1 General 175

- In addition to the constructional requirements in IEC 60794-2 and IEC 60794-2-20, the 176 following considerations apply to multiple multi-fibre unit cables for use in MPO connector 177 terminated breakout cable assemblies. 178
- It is not the intention of this document to specify the finished terminated cable assembly 179 complete with terminations. 180
- 181 There shall be no fibre splice in any delivery length unless otherwise agreed by the customer and the supplier. 182
- It shall be possible to identify each individual fibre throughout the length of the cable. 183

#### 4.2 **Optical fibres** 184

Multimode or single-mode optical fibres meeting the requirements of IEC 60793-2-10 sub-185 186 categories A1-OM1 or A1-OM2 to A1-OM5, or IEC 60793-2-50 class B shall be used. The linear coefficient of optical fibre attenuation and attenuation point discontinuity may be 187

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affected by the cable manufacturing process. Maximum values for these opticalcharacteristics shall be agreed between the customer and the supplier.

### 190 **4.3 Multi-fibre unit**

A multi-fibre unit contains a number of primary coated fibres and can be used as a breakout branch directly or with some further protections. The fibre number in a multi-fibre unit shall be in accordance with fibre number of the connector which the unit is to be terminated with.

A multiple multi-fibre unit cable can contain several multi-fibre units. The multi-fibre units in the cable core shall be identifiable by appropriate means (e.g. numbers, rings, colour, etc.).

If the multi-fibre units are to be directly used as breakout branches, the dimensions of the
 multi-fibre units and tolerance values shall be specified in relevant specification. The multi fibre units shall meet the requirements of cables for cords in IEC 60794-2-23.

### 199 **4.4 Stranded core**

The multi-fibre units can be stranded together with or without a central member. For the sake of preserving cable geometry, some units may be "filler" or "empty" elements not containing optical fibres.

## **4.5 Strength and anti-buckling members**

The cable shall be designed with enough strength members to meet installation and service conditions so that the fibres are not subjected to strain in excess of the limits agreed between the customer and the supplier.

The strength and/or anti-buckling members may be either metallic or non-metallic and may be located in the cable core and/or under the sheath and/or in the sheath. A multi-fibre unit which has a sheath/tube and to be used directly as a breakout branch should contain enough strength members.

### 211 **4.6 Ripcord**

212 If required, a ripcord may be provided beneath the cable sheath. The functionality of the213 ripcord shall be tested according to IEC 60794-1-21, Method E25.

## 214 **4.7 Cable sheath**

The cable shall have an overall protective sheath. The outer dimensions, sheath thickness of the cable and tolerance values shall be specified in relevant specification.

## 217 4.8 Sheath marking

218 If required, the cable shall be marked as agreed between the customer and the supplier. The219 marking shall be resistant to abrasion.

### **220 4.9 Examples of cable constructions**

Examples of cable constructions are shown in Annex B. Other configurations are not precluded if they meet the mechanical, environmental and transmission requirements given in this document.