



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 62148-17:2023**  
**01-marec-2023**

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**Aktivne komponente in naprave optičnih vlaken - Standardi za ohišja in vmesnike - 17. del: Oddajniške in sprejemniške komponente z dvojnimi koaksialnimi radiofrekvenčnimi (RF) konektorji**

Fibre optic active components and devices - Package and interface standards - Part 17: Transmitter and receiver components with dual coaxial RF connectors

**ITeH STANDARD PREVIEW**  
**(standards.iteh.ai)**

Composants et dispositifs actifs à fibres optiques - Normes de boîtiers et d'interface - Partie 17: Composants émetteurs et récepteurs munis de connecteurs coaxiaux RF doubles

**Ta slovenski standard je istoveten z: prEN IEC 62148-17:2023**

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**ICS:**

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices
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# 86C/1838/CDV

## COMMITTEE DRAFT FOR VOTE (CDV)

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OF INTEREST TO THE FOLLOWING COMMITTEES: SC 46F	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input checked="" type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
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TITLE:

**Fibre optic active components and devices - Package and interface standards - Part 17: Transmitter and receiver components with dual coaxial RF connectors**

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES –  
PACKAGE AND INTERFACE STANDARDS –****Part 17: Transmitter and receiver components  
with dual coaxial RF connectors**

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IEC 62148-17 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics. It is an International Standard.

This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) IEC 61169-60 was added as a normative reference for SMPM connectors;
- b) normative reference IEC 60874-1 (withdrawn) was replaced by IEC 61754 (all parts);
- c) a reference to the terms and definitions of IEC 62007-1 was added in Clause 3;
- d) a new column "Typical" was added to the tables in Figure 2 and Figure 3 to clarify the meaning of all listed values.

This standard is to be read in conjunction with IEC 62148-1.

The text of this standard is based on the following documents:

FDIS	Report on voting
86C/XXXX/FDIS	86C/XXXX/RVD

102

103 Full information on the voting for the approval of this standard can be found in the report on  
104 voting indicated in the above table.

105 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in  
106 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available  
107 at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are  
108 described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

109 A list of all parts of the IEC 62148 series, published under the general title *Fibre optic active*  
110 *components and devices – Package and interface standards*, can be found on the IEC website.

111 The committee has decided that the contents of this publication will remain unchanged until the  
112 stability date indicated on the IEC web site under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the  
113 specific publication. At this date, the publication will be

- 114 • reconfirmed,
- 115 • withdrawn,
- 116 • replaced by a revised edition, or
- 117 • amended.

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<https://standards.iteh.ai/catalog/standards/sist/23f20a75-9c5f-4464-8bf9-50bfdb5f59c0/osist-pren-iec-62148-17-2023>

# FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES – PACKAGE AND INTERFACE STANDARDS –

## Part 17: Transmitter and receiver components with dual coaxial RF connectors

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### 1 Scope

127 This part of IEC 62148 defines physical interface specifications for transmitter and receiver  
128 components with dual coaxial RF connectors.

### 2 Normative references

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

134 IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for*  
135 *class B single-mode fibres*

136 IEC 61169-60, *Radio-frequency connectors – Part 60: Sectional specification for RF coaxial*  
137 *connectors with push on mating – Characteristic impedance 50 Ohm (type SMPM)*

138 IEC 61754 (all parts), *Fibre optic interconnecting devices and passive components - Fibre optic*  
139 *connector interfaces*

140 IEC 62007-1:2015, *Semiconductor optoelectronic devices for fibre optic system applications –*  
141 *Part 1: Specification template for essential ratings and characteristics*

142 IEC 62148-1, *Fibre optic active components and devices – Package and interface standards –*  
143 *Part 1: General and guidance*

144 IEC Guide 107, *Electromagnetic compatibility – Guide to the drafting of electromagnetic*  
145 *compatibility publications*

### 3 Terms, definitions and abbreviated terms

#### 3.1 Terms and definition

148 For the purposes of this document, the terms and definitions given in IEC 62007-1:2015 apply.

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

- 151 • IEC Electropedia: available at <https://www.electropedia.org/>
- 152 • ISO Online browsing platform: available at <https://www.iso.org/obp>

153

#### 3.2 Abbreviated terms

155	EMwL	External modulator with laser diode
156	IC	Integrated circuit
157	LD	Laser diode
158	PCB	Printed circuit board
159	PD	Photo diode
160	PIN	Positive intrinsic negative
161	RF	Radio frequency

162	SMPM	Sub-miniature push-on miniature
163	TEC	Thermo-electric cooler
164	TIA	Trans-impedance amplifier

#### 165 **4 Electromagnetic compatibility (EMC) requirements**

166 The components specified in this document shall comply with suitable requirements for  
 167 electromagnetic compatibility (in terms of both emission and immunity), depending on particular  
 168 usage/environment in which they are intended to be installed or integrated.

169 Guidance to the drafting of such EMC requirements is provided in the IEC 61000 series.

#### 170 **5 Classification**

171 The transmitter and receiver components with dual coaxial RF connectors described in this  
 172 standard are classified as type 7 according to the definitions of IEC 62148-1.

#### 173 **6 Specification of transmitter component with dual coaxial RF connectors**

##### 174 **6.1 General**

175 The intention of this clause is to specify adequately the physical requirements of an optical  
 176 transmitter component with an EMWL, a modulator driver IC, a TEC and dual coaxial RF input  
 177 connectors. It will enable mechanical interchangeability of components complying with this  
 178 specification both for the PCB and for any panel mounting requirement.

##### 179 **6.2 Pigtail interface**

180 All optical fibres defined in IEC 60793-2-50 are applicable.

181 All optical connectors defined in the IEC 61754 series are applicable if a pigtail is to be  
 182 terminated with an optical connector.

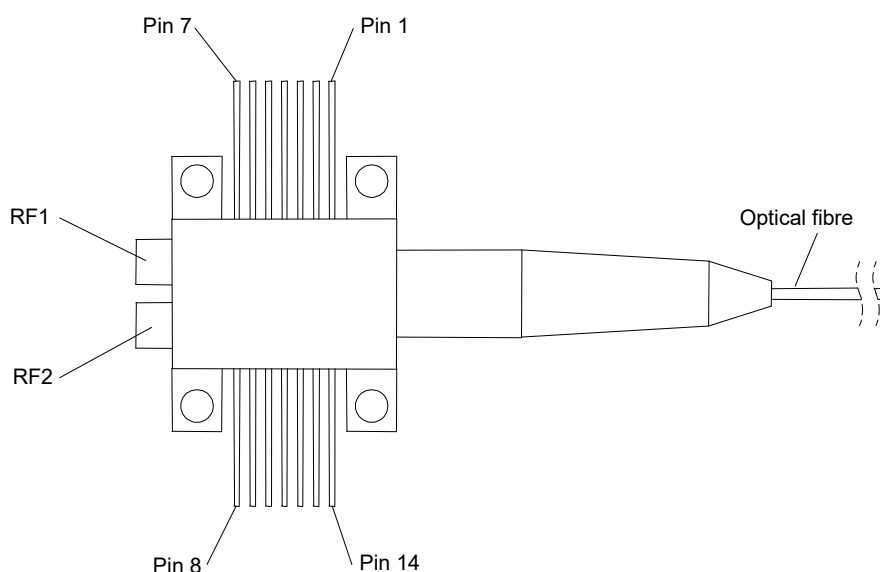
##### 183 **6.3 Electrical interface**

###### 184 **6.3.1 General**

185 The electrical interface in this specification defines only the basic functionality of each pin.

###### 186 **6.3.2 Numbering of electrical terminals**

187 Terminal numbering assignments are shown in Figure 1.





189  
190**Figure 1 – Electrical terminal numbering assignments for transmitter component with dual coaxial RF connectors**

191

**6.3.3 Coaxial connector**

193 The transmitter component has male type coaxial connectors as RF1 and RF2 terminals. The  
194 connectors can handle RF electrical signals and are compatible with the SMPM connector  
195 defined in IEC 61169-60 having pin-centre contact full detent.

**6.3.4 Electrical terminal assignment**

197 The basic functionalities of each electrical terminal for transmitter components are defined in  
198 Table 1.

199

**Table 1 – Terminal function definitions**

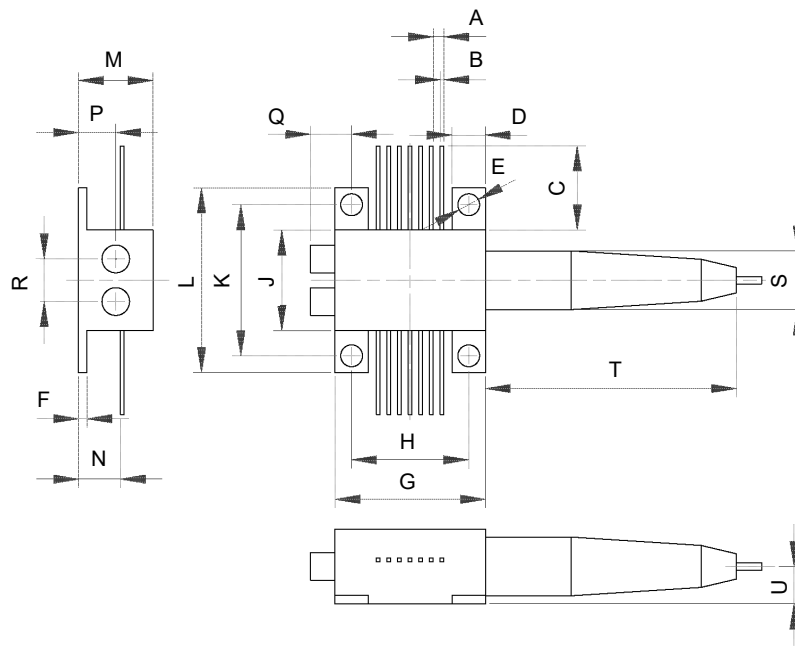
Terminal number	Symbol	Function
1	LDA	LD anode
2	PDA	PD anode
3	$V_b$	Modulator bias
4	$V_m$	Modulator modulation
5	$V_{ss}$	Driver IC supply voltage
6	$V_x$	Cross point control voltage
7	–	Vendor option
8	–	Vendor option
9	–	Vendor option
10	GND	Case ground
11	–	Vendor option (reserved for thermistor)
12	$R_{TH}$	Thermistor
13	TEC (–)	TEC cathode <sup>a</sup>
14	TEC (+)	TEC anode <sup>a</sup>
RF1	IN or INB	RF input <sup>b</sup>
RF2	INB or IN	RF input <sup>b</sup>
<sup>a</sup> TEC acts as an EMwL chip-cooler in the bias direction described here. When it is biased reversely, its function is changed into heating.		
<sup>b</sup> Polarity of RF outputs shall be defined by each vendor.		

200

**6.4 Package outline and footprint****6.4.1 Drawing of package outline**

203 A drawing of the package outline as well as the dimensions is given in Figure 2.

204



IEC 2399/13

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Reference	Dimensions mm			Notes
	Minimum	Typical	Maximum	
A	-	1,27	-	Basic dimension
B	-	-	0,45	
C	10,0	-	-	
D	3,75	-	4,25	
E	-	2,6	-	Diameter, basic dimension
F	-	-	1,0	
G	17,75	-	18,25	
H	13,9	-	14,1	
J	11,75	-	12,25	
K	17,9	-	18,1	
L	21,75	-	22,25	
M	-	-	8,9	
N	4,6	-	5,0	
P	-	4,45	-	Basic dimension
Q	4,65	4,90	5,15	
R	-	5,08	-	Basic dimension
S	-	-	7,0	Diameter
T	-	-	30	
U	-	4,45	-	Basic dimension

206

207

Figure 2 – Package outline drawing

208

209