SLOVENSKI STANDARD
oSIST prEN IEC 62148-22:2022

01-oktober-2022

Aktivne optične komponente in naprave - Standardi za ohišja in vmesnike - 22. del: Neposredno modulirana laserska ohišja 25 Gbit/s z enoto za nadzor temperature

Fibre optic active components and devices - Package and interface standards - Part 22: 25 Gbit/s directly modulated laser packages with temperature control unit

Ta slovenski standard je istoveten z: **prEN IEC 62148-22:2022**

ICS:

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices

oSIST prEN IEC 62148-22:2022 **en**

86C/1804/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 86C : FIBRE OPTIC SYSTEMS AND ACTIVE DEVICES

SECRETARIAT: United States of America	SECRETARY: Mr Fred Heismann
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

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TITLE:

Fibre optic active components and devices - Package and interface standards - Part 22: 25 Gbit/s directly modulated laser packages with temperature control unit

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES – PACKAGE AND INTERFACE STANDARDS

Part 22: 25 Gbit/s Directly modulated laser packages with temperature control unit

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IEC 62148-22 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
86C/XX/FDIS	86C/XX/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement,

available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

Fibre optic laser devices are used to convert electrical signals into optical signals. This international standard covers the physical dimensions and interfaces for directly modulated laser (DML) packages which are intended to be applied to 25 Gbit/s transceivers.

FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES – PACKAGE AND INTERFACE STANDARDS

Part 22: 25 Gbit/s Directly modulated laser packages with temperature control unit

1 Scope

This part of IEC 62148 defines the physical dimensions and interface specifications for directly modulated laser (DML) devices used in optical telecommunication and optical data transmission applications.

The intent of this document is to adequately specify the physical requirements for DML devices so as to enable mechanical interchangeability of laser devices or transmitters complying with this document both at the printed circuit board and for any panel-mounting requirements.

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.

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

IEC 61753 (all parts), *Fibre optic interconnecting devices and passive components – Performance standards*

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

IEC 61755 (all parts), *Fibre optic interconnecting devices and passive components – Fibre optic connector optical interfaces*

IEC 61754-20, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 20: Type LC connector family*

IEC 61754-36, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces Part 36: Type SAC connector family*

IEC 61754-37, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces Part 37: Type MDC connector family*

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

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in IEC 62148-1 and the following 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 Terms and definitions

3.1.1

pigtail package

package type of photonic devices which has a length of fibre attachment for both optical input and output ports

[SOURCE: IEC 62148-15:2021]

3.1.2

TOSA module

optical module that converts electrical signals into optical signals and that is connected to an optical fibre

[SOURCE: IEC 62148-18:2014]

3.2 Abbreviated terms

CAN	airtight sealed metal container (see IEC 60747-1)
DML	directly modulated laser
LD	laser diode
MPD	monitor photodiode
NC	not connected
PD	photodiode
RH	heat resistor
RTH	thermistor resistor
TEC	thermo-electric cooler
TO	transistor outline
TOSA	transmitter optical subassembly

4 Specification of the optical interface

4.1 Optical connector interface

This standard applies to the LC optical connector interfaces. Detailed dimensions of the optical receptacle are specified in IEC 61754-20.

4.2 Pigtail interface

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

All optical connectors defined in the IEC 61753 series, IEC 61754 series, and IEC 61755 series are applicable when a pigtail is to be terminated with an optical connector.

5 Specification of electrical interface

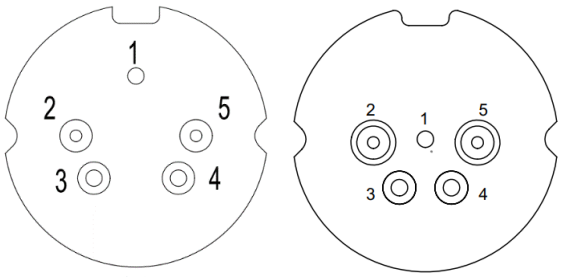
5.1 General

The specifications for the electrical interfaces of DML TO CAN packages are described in 5.2. The specifications for the electrical interfaces of DML for TOSA and DML pigtail packages are described in 5.3. The electrical interface specifications define only the basic functionality of each pin.

5.2 Electrical interface specifications for DML TO CAN package

5.2.1 5-pin

The electrical terminal numbering assignments for 5-pin type TO CAN packages with temperature control unit are shown in Figure 1. The pin function definitions for 5-pin TO CAN packages are specified in Table 1.



a) b)

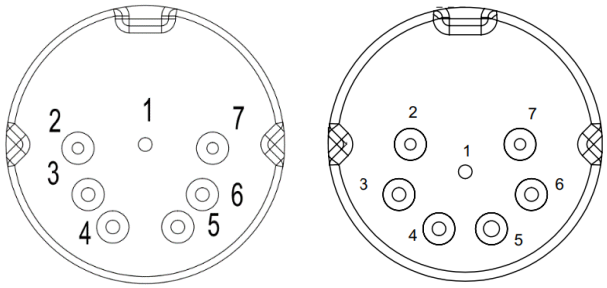
Figure 1 – Electrical terminal numbering assignments for 5-pin type TO CAN packages with temperature control unit

Table 1 – Pin function definitions for 5-pin type DML TO CAN packages

Pin number	Function	
	Option 1	Option 2
1	Ground/MPD anode/RH cathode	Ground /RH cathode
2	LD anode	LD anode
3	RH anode	RH anode/MPD anode
4	MPD cathode	MPD cathode
5	LD cathode	LD cathode

5.2.2 7-pin

The electrical terminal numbering assignments for 7-pin type TO CAN packages with temperature control unit are shown in Figure 2. The pin function definitions for 7-pin TO CAN packages are specified in Table 2.



a) b)

Figure 2 – Electrical terminal numbering assignments for 7-pin type TO CAN packages with temperature control unit

Table 2 (1/2) – Pin function definitions for 7-pin type DML TO CAN packages

Pin number	Function		
	Option 1	Option 2	Option 3
1	Ground/RH cathode /MPD cathode	Ground	Ground /RH cathode /MPD anode
2	LD anode	LD anode	LD anode