SLOVENSKI STANDARD
oSIST prEN IEC 61076-2:2024

01-december-2024

Konektorji za elektronsko opremo - Zahteve za izdelek - 2. del: Področna specifikacija za okrogle konektorje

Connectors for electronic equipment - Product requirements - Part 2: Sectional specification for circular connectors

Steckverbinder für elektronische Einrichtungen - Produktanforderungen - Teil 2: Rahmenspezifikation für Rundsteckverbinder

Connecteurs pour équipements électroniques - Exigences de produit - Partie 2: Spécification intermédiaire pour les connecteurs circulaires

Ta slovenski standard je istoveten z: **prEN IEC 61076-2:2024**

ICS:

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48B/3119/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 48B : ELECTRICAL CONNECTORS	
SECRETARIAT:	SECRETARY:
United States of America	Mr Jeffrey Toran
OF INTEREST TO THE FOLLOWING COMMITTEES:	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

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.

Recipients of this document are invited to submit, with their comments, notification of any relevant “In Some Countries” clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Connectors for electronic equipment - Product requirements - Part 2: Sectional specification for circular connectors

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2: Sectional specification for circular connectors

FOREWORD

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IEC 61076-2 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment. It is an International Standard.

This third edition cancels and replaces the second edition published in 2011. This edition constitutes a technical revision.

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

a) Added content to the Technical information, Dimensional information and the Characteristics clauses

b) Updated the Test schedule table format and added Notes and other information

c) Added Table M with transmission characteristics tests

d) Deleted clause 7 regarding Blank detail specification

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

Draft	Report on voting
XX/XX/FDIS	XX/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.

A list of all parts of the IEC 61076 series, published under the general title *Connectors for electrical and electronic equipment – Product requirements,* can be found on the IEC website.

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.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under 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.

CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2: Sectional specification for circular connectors

1 Scope

This part of IEC 61076 establishes uniform specifications and technical information for circular connectors. It should be used in conjunction with the generic specification IEC 61076-1 for product requirements and with IEC 62197-1 for quality assessment requirements as the basis for preparation of consistent detail product specifications for circular connectors.

NOTE1 The quality assessment requirements for connectors according to the IEC 61076 series are detailed in IEC 62197-1.

In the event of conflict between this sectional product specification and the detail product specification, it is intended that the requirements of the detail product specification prevail.

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 for 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 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60352 (all parts), *Solderless connections*

IEC 60512 (all parts), *Connectors for electronic equipment – Basic testing procedures and measuring methods*

IEC 60664-1, Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests

IEC 61076-1, *Connectors for electronic equipment – Product requirements – Part 1: Generic specification*

IEC 61984, Connectors – Safety requirements and tests

IEC 62197-1, *Connectors for electronic equipment – Quality assessment requirements – Part 1: Generic specification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61076-1, IEC 60512-1, IEC 61984 and in IEC 60664-1 apply.

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

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

4 Technical information

4.1 System of levels

Clauses 4.1.1 and 4.1.2 provide information about Performance and Compatibility levels (respectively).

4.1.1 Performance levels

If appropriate, the detail product specification shall contain information about the different performance levels.

The term ‘performance level’ reflects the grouping of the environmental and mechanical stresses at which a component is tested, and also such features as long-term stability of electrical characteristics. If different levels are defined in the detail product specification, they shall be numbered, where the lowest number (1) usually indicates the highest performance.

4.1.2 Compatibility levels

As a function of the standardization degree, four levels characterize the compatibility of connectors from different sources. These levels are defined in IEC 61076-1 and should, when appropriate, be indicated in the detail product specification of circular connectors.

4.2 Classification into climatic categories

Unless impractical, the lower and upper temperatures and the duration of the damp heat, steady state test should be described in a table similar to the example given in IEC 61076-1.

For a correct assignment of climatic category, the correct relationship between the upper category temperature (UCT) and the upper limiting temperature (ULT) of a connector (implied in the derating diagram(s) discussed in 4.4), as well as between the lower category temperature (LCT) and the lower limiting temperature (LLT) of a connector, see IEC 61984 relevant definitions.

4.3 Clearance and creepage distances

Permissible working or rated voltages depend on the connector end-use application and on the applicable or specified safety requirements.

Clearance and creepage distances as well as proof voltages under specified air pressure shall be specified in the detail product specification, based on the assigned rated insulation voltage. See IEC 61984, IEC 60664-1 or IEC/TR 63040, as applicable.

4.4 Current-carrying capacity

For each connector, the current-carrying capacity for the declared wire size (typically the maximum) shall be specified in the detail product specification. It is preferable that the derating curve for the relevant wire size, determined in accordance with test 5b of IEC 60512-5-2 is prepared. Alternatively, it is allowed to provide only one value of rated current for a specified wire size at a specified temperature as described in IEC 60512-5-1.

NOTE 1 – The derating curve(s) can be provided in graphic form and/or in mathematical form with the formula:

$$I_{(t)} = I_{(0\,°C)} \times \left(1 - \frac{t}{ULT}\right)^{0,5}$$

where:

$I_{(t)}$ = working current at ambient temperature t;

$I_{(0\,°C)}$ = working current at 0 °C (intersection with y-axis);

t = ambient temperature;

ULT = upper limiting temperature (intersection with x-axis ≥ UCT (upper category temperature)

NOTE 2 – The basic diagram determined in accordance with test 5b of IEC 60512-5-2 is then verified by a temperature rise test 5a of IEC 60512-5-1

4.5 Marking

Each connector and its associated package shall be marked in accordance with the requirements specified in IEC 61076-1.

5 Dimensional information

Dimensions provided in the detail product specification for circular connectors shall provide

- mating information;
- mounting information;
- overall dimension;
- locking and sealing information, if applicable;
- information on termination and cable fixing.

For more details see IEC 61076-1.

5.1 Isometric view and common features

Isometric view and common features shall be provided in the detail product specification.

5.2 Pin assignment and other definitions

Pin assignment and other definitions, if applicable, shall be provided in the detail product specification.

5.3 Engagement (mating) information

Mating information shall be provided in the detail product specification including, as applicable:

- mating direction;
- electrical engagement length;
- contact levels and sequencing;
- perpendicular to the mating direction;
- inclination;

5.4 Fixed connectors

Fixed connectors shall be described in the detail product specification with relevant drawing(s) providing interface dimensions for mating and locking – if means are provided – with counterpart connectors and the mounting of accessories, if any, and termination dimensions and type(s).

5.5 Free connectors

Free connectors shall be described in the detail product specification with relevant drawing(s) providing interface dimensions for mating and locking – if means are provided – with counterpart connectors and the mounting of accessories, if any, and termination dimensions and type(s).

5.6 Accessories

Accessories, such as special contacts, coding devices, mounting devices, if any, shall be described by the detail product specification with relevant drawing(s) providing interface dimensions for mounting on the corresponding connector(s).

5.7 Mounting information

Mounting information shall be provided in the detail product specification.

5.8 Gauges

Sizing and retention force gauges (e.g. for mechanical tests on contacts and terminations), as well as gauges deemed to verify the connector's mechanical function, such as engaging /separating /insertion /withdrawal force gauges, probes (for damage testing), contact resistance gauges, test panels (e.g., for voltage proof test and/or for EMC/crosstalk test, etc), if applicable, shall be described in the detail product specification.

6 Characteristics

To provide information on specified essential electrical and mechanical characteristics, preferred methods on tests and measurements are listed in 6.1 through 6.3; additional characteristics may be added to the detail product specification, when appropriate.

6.1 Electrical characteristics

Electrical characteristics, such as minimum clearance and creepage distances based on assigned rated (insulation) voltage(s), presence or not of protective earth (PE) and/or functional earth (FE) contact(s), voltage proof, current-carrying capacity, contact and shield (if any) resistance, insulation resistance, characteristic impedance, as applicable to the specific connectors, shall be provided in the detail product specification.

6.2 Transmission characteristics

Transmission characteristics, such as attenuation/insertion loss, return loss, near-end crosstalk (NEXT) loss, far-end crosstalk (FEXT) loss, voltage standing wave ratio (VSWR), transfer impedance/shielding effectiveness, as far as applicable, shall be provided by the product detail specification.

6.3 Mechanical characteristics

Mechanical characteristics such as mechanical operation (number of mating cycles), effectiveness of connector coupling devices, engaging and separating forces (or insertion and withdrawal forces), contact retention in insert, insert retention in housing, polarizing and coding, as applicable, shall be provided in the detail product specification.

6.4 Other characteristics

Other functional characteristics, such as shock and vibration (with relevant testing method either random or sine), degree of protection provided by enclosures (IP code), screen and shielding properties, shall be provided as applicable in the detail product specification.

6.5 Environmental aspects

Marking of insulating materials for recyclability purposes at end-of-life, as well as design/use of materials, as applicable, shall be provided by detail product specification

7 Tests and test schedules

7.1 General aspects

See IEC 61076-1.

The detail product specification shall state the test sequence(s) (in accordance with this standard), and the number of specimens for each test sequence (not less than four mated pairs).

Individual variants may be submitted to type tests for approval of those variants.