

Connectors for use in d.c. low-frequency analogue and digital high-speed data applications —

Part 2: Circular connectors with assessed quality— Sectional specification

The European Standard EN 61076-2:1999 has the status of a
British Standard

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National foreword

This British Standard is the English language version of EN 61076-2:1999. It is identical with IEC 61076-2:1998.

The UK participation in its preparation was entrusted by Technical Committee EPL/48, Electromechanical components for electronic equipment, to Subcommittee EPL/48/2, Connectors for electronic equipment, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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Summary of pages

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English version

**Connectors for use in d.c. low-frequency analogue and
digital high-speed data applications
Part 2: Circular connectors with assessed quality
Sectional specification
(IEC 61076-2:1998)**

Connecteurs pour applications
analogiques en courant continu et à
basse fréquence et pour applications
numériques utilisant des débits élevés
pour le transfert des données
Partie 2: Connecteurs circulaires sous
assurance de la qualité - Spécification
intermédiaire
(CEI 61076-2:1998)

Steckverbinder für Gleichspannungs-
und Niederfrequenzanwendungen
sowie digitale Anwendungen mit hoher
Übertragungsrate
Teil 2: Rundsteckverbinder mit
bewerteter Qualität
Rahmenspezifikation
(IEC 61076-2:1998)

This European Standard was approved by CENELEC on 1999-04-01. 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 Central Secretariat or to any CENELEC member.

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CENELEC

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

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Foreword

The text of document 48B/731/FDIS, future edition 1 of IEC 61076-2, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61076-2 on 1999-04-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2000-01-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2002-01-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61076-2:1998 was approved by CENELEC as a European Standard without any modification.

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CONNECTORS FOR USE IN DC, LOW-FREQUENCY ANALOGUE AND DIGITAL HIGH SPEED DATA APPLICATIONS –

Part 2: Circular connectors with assessed quality – Sectional specification

1 General

1.1 Scope

This part of IEC 61076 establishes uniform specifications, type testing requirements and quality assessment procedures for circular connectors.

It contains a choice of all test methods and sequences, severities and preferred values for dimensions and characteristics.

It gives guidance on the rules for the preparation of detail specifications for circular connectors of assessed quality, used in electronic and electrical equipment and systems.

It should be used in conjunction with the generic specification IEC 61076-1 and with the relevant detail specification.

In the event of conflict between the sectional specification and the detail specification, the requirements of the detail specification shall prevail.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61076. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 61076 are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60352-1:1997, *Solderless connections – Part 1: Solderless wrapped connections – General requirements, test methods and practical guidance*

IEC 60352-2:1990, *Solderless connections – Part 2: Solderless crimped connections – General requirements, test methods and practical guidance*

IEC 60352-3:1993, *Solderless connections – Part 3: Solderless accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-4:1994, *Solderless connections – Part 4: Solderless non-accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-5:1995, *Solderless connections – Part 5: Solderless press-in connections – General requirements, test methods and practical guidance*

IEC 60512: — *Electromechanical components for electronic equipment - Basic testing procedures and measuring methods*

IEC 61076-1:1995, *Connectors with assessed quality, for use in d.c. low frequency analogue and in digital high speed data applications – Part 1: Generic specification*

2 Technical information

2.1 Terminology

The terminology used in and applicable to this specification is stated in 2.1 of IEC 61076-1. IEC 60512-1 also contains applicable terms.

2.2 Classification into climatic categories

The lower and upper temperatures and the duration of the damp heat, steady state test should, unless otherwise impractical, be selected from the preferred values stated in 2.2 of IEC 61076-1. The connectors are classified into climatic categories in accordance with the general rules given in IEC 60068-1. The following preferred temperature ranges and severities of the damp heat steady state test have been selected.

Table 1 – Climatic categories – selected values

Climatic category	Temperature range °C	Damp heat, steady state in days d	Identification code ¹⁾
65/350/56	–65 °C to 350 °C	56	U
65/260/56	–65 °C to 260 °C	56	T
65/200/56	–65 °C to 200 °C	56	S
65/175/56	–65 °C to 175 °C	56	X
65/150/56	–65 °C to 150 °C	56	R
65/125/56	–65 °C to 125 °C	56	O
55/155/56	–55 °C to 155 °C	56	Y
55/125/21	–55 °C to 125 °C	21	P
40/100/21	–40 °C to 100 °C	21	N
40/100/10	–40 °C to 100 °C	10	M
25/085/21	–25 °C to 85 °C	21	L
25/070/10	–25 °C to 70 °C	10	K
10/070/04	–10 °C to 70 °C	4	I
¹⁾ Identification code to be used for IEC designation.			

2.3 Creepage and clearance distances

The detail specification shall specify creepage and clearance distances in accordance with the requirements of 2.3 of IEC 61076-1. Operating voltages depend on the application and on the applicable or specified safety requirements.

2.4 Current-carrying capacity

The detail specification shall specify the current-carrying capacity of connectors in accordance with the requirements of 2.4 of IEC 61076-1.

2.5 IEC type designation

Connectors conforming to this standard shall be identified by the following indications and in the order given:

- a) The letters "IEC".
- b) The number (2) denoting this sectional specification.
- c) The number of the detail specification (without dashes), being nine characters (e.g. 610764100).
- d) A letter denoting the style of the connector (the system shall be specified in the detail specification).
- e) A letter denoting a housing or body size.
- f) Two numbers denoting the insert arrangement (not necessarily the number of contacts).
- g) A letter denoting the type of contact:
 - M male contact
 - F female contact
 - H hermaphroditic contact
- h) A letter denoting the basic type of termination. The following letters shall be used:
 - E solder termination eyelet
 - S solder termination, solder bucket
 - P solder termination, printed wires
 - C crimp
 - W wire wrap termination
 - I insulation displacement
- i) A letter or number denoting the connector polarization by a particular arrangement of keys and keyways on housing (shell) or bodies, or position of insert in housing such as N, A, B, C, D, W, X, Y, Z or 0, 1, 2, 3, etc. where N and 0 are the neutral position. Neutral position is the normal or standard position.
- j) If prescribed in the detail specification, the variant code may optionally be extended to cover further information, such as climatic category, colour etc.
- k) Where the detail specification provides for a variation of performance and assessment levels, a single number and a letter shall be used to denote performance level (PL) and assessment level (AL) respectively. The number and letter shall be described in the detail specification and shall be included as the final characters of the type of designation.
- l) Identification code letter given in 2.2.
Grouping of information
 - Basic description: a – b – c – d;
 - Body size, contact arrangement; contact type: e – f – g – h;
 - Polarization: i;
 - Performance variant: j – k.

2.6 Marking

Each connector and its associated package shall be marked in accordance with the requirements specified in 2.6 of IEC 61076-1.

2.7 Groups of related connectors

Groups of connectors within a subfamily having common features. Typical examples are: same mounting features but different kinds and numbers of contacts, or equal coupling features but different inserts and types of contacts. A group of related connectors is covered by a single detail specification.

- Type: connectors within a particular subfamily such as a multicontact connector with a threaded coupling.
- Range: the housing (shell) sizes and contact arrangements within a type.
- Style: a particular connector within a type, for example fixed connector for single hole mounting.
- Variant: variations within a type, style or range.

Examples

- family: connector;
- subfamily: circular connector;
- type: circular multi-contact connector with threaded coupling;
- range: shell size 1 with 2 contacts to shell size 3 with 62 contacts;
- variant: shell size 1 with 2 contacts – electroless nickel plating, insulation displacement termination etc.

2.8 Interchangeability level

Under consideration.

2.9 Delivery conditions

Connectors may be delivered with or without contacts (*for removable contacts*) depending on the order. The detail specification shall specify if the shell front face shall be protected with plastic caps. For connectors delivered with contacts the detail specification shall specify:

- the number of additional contacts per size;
- the number of insertion/extraction tools per contact size; and
- the number of filler plugs.

2.9.1 Packaging

The connectors with, if applicable, their contacts, filler plugs and tools shall be packed in transparent, inert plastic bags. The contacts and filler plugs shall be packed in a rigid container to prevent damage. Designation affixed on the packaging shall be in conformity with the product standard designation.

2.9.2 Storage

Storage shall be in a place free from ultraviolet rays and temperature and humidity extremes. Every five years, an inspection shall be made. The date of inspection shall be marked and the product repackaged in accordance with the packaging.