

Connectors for electronic equipment

Part 2-001: Circular connectors — Blank detail specification

The European Standard EN 61076-2-001:2001 has the status of a
British Standard

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National foreword

This British Standard is the official English language version of EN 61076-2-001:2001. It is identical with IEC 61076-2-001:2001

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 international/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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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
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Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 48B/1085/FDIS, future edition 1 of IEC 61076-2-001, 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 61076-2-001 on 2001-12-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
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- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2001-12-01

Annexes designated "normative" are part of the body of the standard.

In this standard, annexes A and ZA are normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61076-2-001:2001 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

In prior years, IEC subcommittee 48B had prepared detail specifications as part of a two-level document system. When the IECQ system was introduced, SC 48B was urged to consider changing to the four-level specification system as described in IEC Guide 102. This blank detail specification is part of that four-level document system.

This blank detail specification is a supplementary document to the sectional specification IEC 61076-2 and contains requirements for style, lay-out, and the minimum content of detail specifications.

For the scope and definition of this blank detail specification, see 1.2 of IEC 61076-1 and 1.1 of IEC 61076-2.

Detail specifications not complying with these requirements should not be considered as being in accordance with the IECQ system, and should not be so described.

The complete requirements for the circular connectors described herein should correspond to this blank detail specification and the current issues of IEC 61076-1 and IEC 61076-2.

In the preparation of detail specifications, the contents of 1.2.3 of IEC 61076-1 should be taken into account.

NOTE In order to facilitate the use of this standard, 'Guidance notes' are provided on the left page and the matching clause numbers are on the right page. French pages are followed immediately by English pages. The 'Guidance notes' are provided to aid the specification preparer in writing a more complete and accurate document. They represent the minimum information necessary. The specification preparer is encouraged to add figures or additional text that will make the requirements clearer to the user.

Guidance notes

The following pages give a recommended layout of a detail specification. The contents of this page give guidance on the information which should wherever possible be given on the front page of a detail specification (see IEC Guide 102).

For the scope and definition of a detail specification, see 1.2.3 of IEC 61076-1.

The numbers between brackets on the front page of the detail specification correspond to the following information.

Identification of the detail specification

- (1) The International Electrotechnical Commission or the National Standards Organization under whose authority the detail specification is drafted. It should also be stated where the detail specification can be obtained.
- (2) The IECQ QC number of the detail specification and date of issue.
- (3) The IECQ QC number and issue number of the generic specification.
- (4) Any information required by the national systems.

Identification of the connector

- (5) A short description of the type of connector.
- (6) Information on the typical construction of the connector, for example it should be stated whether or not the connector is suitable for mounting on panels.
- (7) Outline drawing, preferably of isometric or similar projection, from which the connector may be clearly identified.
- (8) Information on performance level(s) and assessment level(s) specified in the document.
- (9) Reference data on the most important properties, to allow comparison between the various connector types.

NOTE It may be convenient for some of this information to be given in tabular form.

[1]	IECQ/IEC Detail specification number [2]
Generic specification number Electronic components of assessed quality in accordance with: [3]	National number of detail specification (it is not necessary to use this if the IECQ/IEC number is identical) [4]
Outline drawing [7]	Product description [5]
	[6]
	[8] Performance level(s): Assessment level(s): Combination of performance levels and assessment levels:
	Reference data [9]
Information on the availability of components qualified to this detail specification is given in the qualified products lists.	

1 General information

1.1 Scope

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

1.2 Number of contacts or contact cavities

1.2.1 Rear or panes mounting for fixed connectors

1.2.2 Contact mounting for fixed, front or rear release

1.3 Ratings and characteristics

Rated voltage	Current-carrying capacity
Insulation resistance	Climatic category
Creepage and clearance distances	

Guidance notes

1.4 Normative references

It may be necessary to make reference to other documents in addition to those stated, in which case the list of related documents will be extended beyond those referenced.

Where reference is made to standards already listed in IEC 61076-1 and IEC 61076-2, such listing shall not be repeated in 1.4 of the detail specification.

1.5 Marking

The marking of the connector and the package shall be in accordance with 2.6 of IEC 61076-1.

1.4 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61076. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, 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 indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60917 (all parts), *Modular order for the development of mechanical structures for electronic equipment practices*

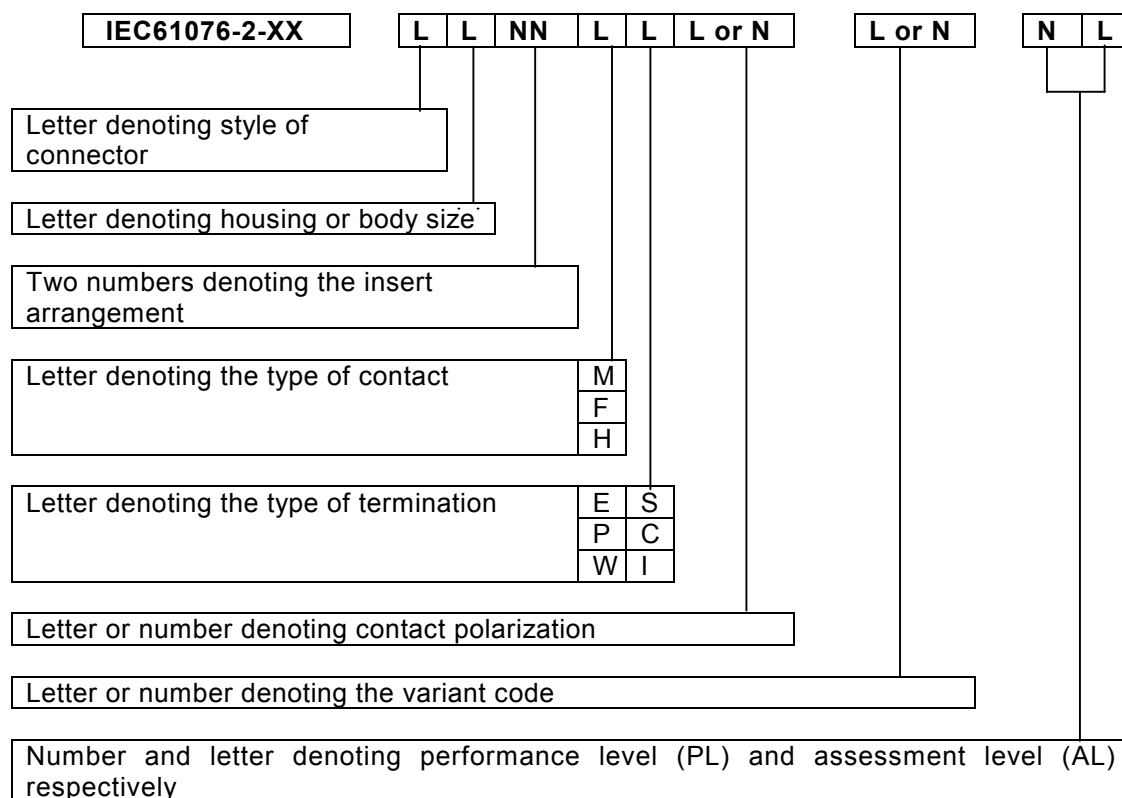
IEC 61076-2, *Connectors for use in d.c., low frequency analogue and digital high speed data applications – Part 2: Circular connectors with assessed quality – Sectional specification*

1.5 Marking

Guidance notes**1.6 IEC type designation**

The designation shall be derived in accordance with 2.5 of IEC 61076-2:

Example:

**1.7 Ordering information**

For ordering connectors according to this detail specification, the type designation described in 1.6 shall be used.

1.6 IEC type designation

1.7 Ordering information

Guidance notes

2 Technical information

The detail specification shall contain information which contributes to a proper application of the connectors. It will also provide specifics for a better understanding of the detail specification.

2.1 Definitions

In addition to the terminology used in and applicable to the detail specification, as stated in 2.1 of IEC 61076-2, it is recommended to list those definitions which are particular to the connectors specified in the detail specification.

2.2 Survey of styles and variants

Should the detail specification be applicable to a range of styles and/or variants, a survey of the range covered shall be included in the form of a table in the detail specification. The table shown, table "1", may be amended to include additional and or alternative details if this is applicable in describing the styles and variants.

NOTE Tables used in detail specifications shall be numbered in sequence, the numbering in this standard has been used as an example and therefore numbered as "x" using inverted commas.

2.3 Information on application

If required, rules and recommendations for the use of the connectors specified in the detail specification shall, unless sufficiently covered by dimensional information in clause 3, be listed for:

2.3.1 Complete connectors (pairs)

2.3.2 Fixed connectors

2.3.3 Free connectors

NOTE The category of free connectors includes free coupler connectors. These connectors have coupling or latching hardware as an integral part of the connector. Information about the coupling hardware should be included, as necessary, in this clause and in clauses 3 and 5.

2 Technical information

2.1 Definitions

2.2 Survey of styles and variants

Table "1" – Styles and variants

Connector style and number of contacts	Style reference letter				

2.3 Information on application

2.3.1 Complete connectors (pairs)

2.3.2 Fixed connectors

2.3.3 Free connectors

Guidance notes

2.3.4 Accessories

When accessories provide an essential support to the application of the connectors, the features and use shall be outlined in the detail specification, where applicable.

2.3.4.1 Special contacts

In the case where special contacts are used in conjunction with the contacts specified in the detail specification, information on these contacts shall be presented "for information only", given the fact that no detail specification of such contacts has been published. Special contacts are defined as usually removable contacts for high-current, high-voltage, RF, filter or FO applications.

2.3.4.2 Coding devices

When coding devices which are not an integral part of the connector are used, separate information shall be given in the detail specification.

2.3.4.3 Mounting devices

When mounting devices which do not form an integral part of the connector are recommended, information on these devices shall be presented in the detail specification for reference only.

2.3.5 Shielding/grounding

When shielding and/or grounding features which cannot be considered as an integral part of the connector or an accessory are offered, information shall be given in the detail specification.

2.3.6 Basic type of terminations

When different types of terminations are possible, information on their use shall be presented in the detail specification in a tabular form. More detailed dimensional information may be provided in those parts of the detail specification which describe the dimensions of fixed and free connectors.

If no significant differences occur between terminations of fixed and free connectors, the information may be included in this subclause instead.

2.4 Contact arrangements

When different mechanical contact loading per connector insert is possible and influences the intended application of the connector, information shall be given in the detail specification, preferably in the form of drawings or tables. These arrangements shall be specified by the appropriate combination of the IEC type designation specified in 1.6 of the detail specification.

2.3.4 Accessories

2.3.4.1 Special contacts

2.3.4.2 Coding devices

2.3.4.3 Mounting devices

2.3.5 Shielding/grounding

2.3.6 Basic type of terminations

2.4 Contact arrangements

Guidance notes

3 Drawings and dimensions

In order to facilitate comparison of various specifications, a uniform presentation of drawing information is recommended in accordance with 2.7.1 of IEC 61076-1:

Drawings and dimensions shall cover:

- a) isometric view showing the basic design including common features of related connectors;
- b) fixed connectors;
- c) free connectors
- d) mating information;
- e) accessories;
- f) mounting information for fixed connectors;
- g) assembly information for free connectors;
- h) assembly information for connectors with accessories;
- i) testing gauges, probes and test panels.

3.1 General

It shall be stated in the detail specification if original dimensions are millimetres or inches.

It shall be stated in the detail specification if drawings are shown in first angle or in third angle projection.

The system of lettering shall be as described by 2.7.1.1 of IEC 61076-1.

The following statement shall be included in the detail specification:

The shape of the connectors may deviate from those given in the following drawings as long as the specified dimensions are not influenced.

Wherever practical, the same dimension letters shall be used for corresponding dimensions of fixed and free connectors.

3.2 Isometric view and common features

An isometric view shall be included and shall show the main characteristics of the design including common features, if applicable.

It is convenient to show the dimension reference, the dimension and the feature description in the form of a table, see table "2".

3 Drawings and dimensions

3.1 General

The shape of the connectors may deviate from those given in the following drawings as long as the specified dimensions are not influenced.

3.2 Isometric view and common features

Table "2" – Isometric view and common features

Reference	Dimension	Feature description

Guidance notes

3.2.1 Common features

A description of all the common features relating to the style of connectors covered by the detail specification shall be included.

Data which could be specified include:

- a) the datum point or datum line and a reference to the datum;
- b) position of the mounting hole(s) of the fixed connector;
- c) position of the terminations of the fixed connector;
- d) position of the printed board;
- e) position of the grid of the printed board.
- f) outline dimensions
- g) coupling style
- h) coupling size
- i) fixed or removable contacts
- j) type of cable outlet (straight or angled)

3.2.2 Height dimensions

When multiple connectors are mounted onto a panel or printed board, the height dimension shall be stated in the detail specification.

3.2.3 Depth dimensions

To provide essential information about the position of the edge of a mounting panel or printed board or the fixed connector versus the free connector, depth dimensions shall be stated in the detail specification.

3.2.1 Common features

3.2.2 Height dimensions

3.2.3 Depth dimensions

Guidance notes

3.3 Engagement (mating) information

Details of the limiting factors, within which correct engagement (mating) is ensured, relates to dimensional data on:

3.3.1 Engaging (mating) direction

The range over which the specified contact resistance is ensured in the plug-in direction.

3.3.1.1 Contact levels and sequencing

Dimensional parameters of the different contact levels and their sequence, if applicable.

3.3.2 Inclination

The maximum allowable inclination in the longitudinal and transverse axes in the form of appropriate drawings and tables, dimensional details of the terminations (lengths, thicknesses, diagonals, etc.) and their intended application which may be specified by the appropriate combination of the IEC type designation specified in 1.6 of the detail specification.

NOTE The specification may be given with the aid of drawings if this ensures clarity.

3.4 Fixed connectors

3.4.1 Dimensions

The detail specification shall include an outline drawing(s) of the fixed connector(s) showing the prime dimensions and associated geometrical tolerances.

For clarity, the value of the dimensions may be included as tables which may be separated for those dimensions which are common to all styles/variants and those dimensions which are particular to styles/variants.

Details of marking of contact positions; by number or by letter shall be included in the drawing(s).

3.4.2 Terminations

The detail specification shall include termination length, width, thickness and diagonal dimensions as appropriate.