

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

Part 5: In-line sockets with assessed quality — Sectional Specification

The European Standard EN 61076-5:2001 has the status of a
British Standard

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National foreword

This British Standard is the official English language version of EN 61076-5:2001. It is identical IEC 61076-5:2001.

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 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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Cross-references

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**Connectors for use in d.c., low-frequency analogue and
digital high-speed data applications
Part 5: In-line sockets with assessed quality -
Sectional Specification
(IEC 61076-5:2001)**

Connecteurs pour applications
analogiques en courant continu et
basse fréquence et pour applications
numériques utilisant des débits élevés
pour le transfert de données
Partie 5: Supports pour microboîtiers sous
assurance de la qualité -
Spécification intermédiaire
(CEI 61076-5:2001)

Steckverbinder für Gleichspannungs- und
Niederfrequenzanwendungen sowie
digitale Anwendungen mit hoher
Übertragungsrate
Teil 5: In-Line-Fassungen mit bewerteter
Qualität -
Rahmenspezifikation
(IEC 61076-5:2001)

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 48B/980/FDIS, future edition 1 of IEC 61076-5, 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 61076-5 on 2001-10-01.

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with the EN have to be withdrawn (dow) 2004-10-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes B and ZA are normative and annex A is informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61076-5:2001 was approved by CENELEC as a European Standard without any modification.

CONTENTS

1	Scope and object	5
2	General	5
2.1	Normative references	5
2.2	Marking	6
2.3	Information to be given in a detail specification	7
2.4	Standard values	7
2.5	Classification	7
2.5.1	Termination types	7
2.5.2	Contact style	7
2.5.3	Insulator body configuration	7
2.5.4	Decoupling capacitor	8
3	Quality assessment procedures	8
3.1	General	8
3.2	Primary stage of manufacturing	8
3.3	Structurally similar sockets	8
3.4	Lot-by-lot inspection tests	8
3.5	Periodic inspection tests	8
3.6	Alternative test methods	8
4	Test methods and procedures	9
4.1	General aspects	9
4.2	Pre-conditioning	9
4.3	Mounting of specimens	9
5	Supplementary test information	9
5.1	Test conditions	9
5.2	Mechanical tests	9
5.2.1	Mating force for all socket sizes (insertion and withdrawal forces)	9
5.2.2	Mechanical operation	10
5.2.3	Contact retention	10
5.2.4	Vibration	10
5.2.5	Mechanical shock	10
5.2.6	Terminal strength (robustness of terminations)	11
5.2.7	Solder wicking (under consideration)	11
5.3	Electrical tests	11
5.3.1	Insulation resistance	11
5.3.2	Voltage proof	11
5.3.3	Contact resistance – Millivolt level method	12
5.3.4	Capacitance	12
5.3.5	Inductance (under consideration)	12

5.4	Environmental tests	13
5.4.1	Solderability	13
5.4.2	Resistance to soldering heat	13
5.4.3	Damp heat	13
5.4.4	Dry heat	13
5.4.5	Rapid change of temperature (thermal shock)	14
5.4.6	Corrosive atmosphere or mixed flowing gas or harsh environment (gas tightness)	14
5.4.7	Mould growth (fungus)	15
5.4.8	Porosity (under consideration)	15
5.4.9	Examination of dimensions and mass	15
5.4.10	Visual examination	15
6	Packaging requirements	15
6.1	Unit packing	15
7	Test schedule	15
7.1	General	15
7.1.1	Basic (minimum) test schedule	16
7.1.2	Full test schedule	17
	Annex A (informative) Terminology	26
	Annex B (normative) Test method for determination of gas-tight characteristics for electrical connectors, sockets and/or contact systems	27
	Annex ZA (normative) Normative references to international publications with their corresponding European publications	31
	Figure 1 – Contact resistance test points	12
	Figure 2 – Insertion and withdrawal force test gauge	22
	Figure 3 – Retention force gauge	23
	Table 1 – Basic test schedule	16
	Table 2 – Test group P	17
	Table 3 – Test group AP	18
	Table 4 – Test group BP	18
	Table 5 – Test group CP	19
	Table 6 – Test group DP	19
	Table 7 – Test group EP	20
	Table 8 – Test group FP – electrical characteristics	20
	Table 9 – Test group GP – destructive test	21
	Table 10 – Flat pin test gauge dimensions	22
	Table 11 – Quality conformance inspection, lot-by-lot tests	24
	Table 12 – Quality conformance inspection, periodic tests	25

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

Part 5: In-line sockets with assessed quality – Sectional specification

1 Scope and object

This part of IEC 61076 relates to the plug-in sockets designed for in-line electronic packages of assessed quality. Sockets covered by this specification are devices which provide a means of interchangeability between devices and compliance between mating limits.

The scope of this specification covers sockets for packages with contacts having one of the following in-line formats.

- a) Single in-line sockets.
- b) Dual in-line sockets.
- c) Quad in-line sockets.
- d) Zig-zag in-line (staggered) sockets.

The object of this specification is to define

- a unified numbering system;
- functional levels and standard test methods and gauges for use in the examination of these sockets;
- appropriate reference dimensions of the mating device and board layout to establish intermateability and interchangeability criteria. Test severity and performance requirements prescribed in detail specifications referring to this sectional specification shall be equal to, or greater than, those specified herein; degradations are not permitted.

2 General

2.1 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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60352 (all parts), *Solderless connections*

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 60512-1-100, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 1-100: General – Applicable publications*

IEC 60512-2:1985, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests*

IEC 60512-4:1976, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 4: Dynamic stress tests*

IEC 60512-5:1992, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 5: Impact tests (free components), static load tests (fixed components), endurance tests and overload tests*

IEC 60512-6:1984, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 6: Climatic tests and soldering tests*

IEC 60512-7:1993, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 7: Mechanical operating tests and sealing tests*

IEC 60512-8:1993, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 8: Connector tests (mechanical) and mechanical tests on contacts and terminations*

IEC 60512-9:1992, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 9: Miscellaneous tests*

IEC 60512-11 (all parts), *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 11: Climatic tests*

IEC 60512-11-7:1996, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 11: Climatic tests – Section 7: Test 11g: Flowing mixed gas corrosion test*

ISO 1302:1992, *Technical drawings – Method of indicating surface texture*

2.2 Marking

The socket shall be legibly marked with the following information.

- Terminal identification whenever specified by the detail specification.
- Manufacturer's name, trade mark, or code identification number.
- Identifying number (IEC part number, manufacturer's part number, etc.).
- Date code.

The date code is a four-digit code number. The first two digits shall denote the last two digits of the year. The last two digits shall specify the week of manufacture. For example, a date of 9232 denotes that the sockets were manufactured during the 32nd week of 1992. Other markings may be applied to the socket, provided they do not interfere with, obscure, or confuse those markings required above. Where size, surface conditions or other design considerations do not allow full marking on the part, the markings shall use the order of preference given above. Any required markings which cannot be applied to the socket shall be applied to the package containing the sockets.

2.3 Information to be given in a detail specification

The detail specification shall be derived from the relevant blank detail specification and shall contain all required information. Detail specifications shall not specify requirements inferior to those of the generic or sectional specifications. When more severe requirements are included, they shall be listed in the detail specification and indicated in the test schedules; for example, by an asterisk.

The detail specification shall contain the complete technical requirements for inspection, including the quality conformance test schedule. If the technical requirements of the generic and/or sectional specification relative to inspection are not entirely suitable (either for technical reasons or for special applications) to the component described in the detail specification, the detail specification shall set out clearly the various amendments which are to be made to these requirements.

2.4 Standard values

The range for voltage shall not exceed 1 000 V (d.c. or peak a.c.). The current rating shall not exceed 2 A. Specific voltage and current ratings shall be as defined in the detail specification.

2.5 Classification

Sockets covered by this sectional specification shall be classified with respect to termination type, contact style, insulator body configuration, and decoupling capacitor style.

2.5.1 Termination types

- a) Solderless wrap terminals.
- b) Printed circuit terminals.
- c) Surface mount terminals.

2.5.2 Contact style

- a) Two-piece contact. A contact assembly with a closed-bottom seamless outer sleeve and a multifinger inner spring contact.
- b) Stamped and formed contact. A contact which in its entirety is made by stamping and forming.
- c) Two-piece sealed entry contact. A two-piece contact assembly with a multifinger inner contact and a closed bottom seamless outer sleeve. The lead entry is sealed against external contaminants.

2.5.3 Insulator body configuration

- a) Solid body – no mounting holes.
- b) Open frame.
- c) Solid body with mounting holes.
- d) Flexible plastic socket carrier.
- e) Rigid plastic socket carrier.
- f) Rigid metal socket carrier.
- g) Rigid plastic with metal-pin socket carrier.
- h) Angled mounting.

2.5.4 Decoupling capacitor

- a) Axial lead moulded.
- b) Axial lead ceramic.
- c) Parallel lead moulded.
- d) Parallel lead ceramic.
- e) Surface mount chip.
- f) Surface mount flatpack.

The complete classification of an in-line socket shall consist of all three primary characteristics and decoupling capacitor style where applicable. For example, a DIP (Dual In-line Package) socket with printed circuit terminals, stamped and formed contact, open-frame insulator body configuration and axial lead ceramic decoupling capacitor shall have a classification B2B2.

3 Quality assessment procedures

3.1 General

The qualification inspection tests are prescribed in table 2. When additional test groups are prescribed by the detail specification, the identity of the test group, the sequence of tests, and the minimum sample quantity shall be in accordance with table 2. When the detail specification prescribes tests not in table 2, it shall include the additional test either within an existing test group or as an additional test group. No failures are permitted. In the event that qualification is sought on a variant of a previously qualified socket, qualification inspection shall be limited to those tests for which the test results on previously qualified sockets are not valid for the variant.

3.2 Primary stage of manufacturing

The primary stage of manufacture is the first process subsequent to the manufacture of finished piece parts and subassemblies. A subassembly is defined as the permanent assembly of two or more piece parts.

3.3 Structurally similar sockets

Structurally similar sockets shall be as prescribed in the generic specification.

3.4 Lot-by-lot inspection tests

The lot-by-lot inspection tests are prescribed in table 4. The sequence of tests is optional unless otherwise specified in the detail specification.

3.5 Periodic inspection tests

The periodic inspection tests are prescribed in table 5.

3.6 Alternative test methods

Alternative test methods shall be as described in the generic specification.

4 Test methods and procedures

4.1 General aspects

All tests shall be carried out in accordance with the requirements of IEC 60512 where applicable.

The detail specification shall state the test and sequences and the number of specimens for each test sequence (not less than four).

Individual variants may be submitted to a type test for the approval of those particular variants.

It is permissible to limit the number of variants to a selection representative of the whole range for which approval is required (which may be less than the range covered by the detail specification), but each feature and characteristic shall be proved.

4.2 Pre-conditioning

Before the tests are made, the sockets shall be pre-conditioned under standard atmospheric conditions for testing specified in IEC 60068-1 for a period of 24 h, unless otherwise specified by the detail specification.

4.3 Mounting of specimens

When mounting is required in a test, the socket shall be rigidly mounted on a printed board or a metal plate, whichever is applicable, using the normal mounting method, fixing devices, panel cut-out and wiring details as laid down in the detail specification, unless otherwise specified.

5 Supplementary test information

Unless otherwise specified in the detail specification, the following parameters apply.

5.1 Test conditions

Unless specifically stated otherwise, tests and examinations required by this specification shall be conducted under conditions within the following ranges, in accordance with IEC 60068-1:

Temperature	(25 ± 10) °C (77 ± 18) °F
Relative humidity	from 45 % to 75 %
Barometric pressure	from 86 kPa to 106 kPa

5.2 Mechanical tests

5.2.1 Mating force for all socket sizes (insertion and withdrawal forces)

This test group shall be performed in accordance with IEC 60512-7, test 13b. Insertion force test gauges will be as specified in figure 2. Withdrawal force test gauges will be as specified in figure 3. The maximum mating force shall be as specified in the detail specification.