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Interested committees:

Title: BS EN 61076-3-122 Ed.3.0 Draft Connectors for electrical and electronic equipment - Product requirements. Part 3-122: Detail specification for 8-way, shielded, free and fixed connectors for I/O and data transmission with frequencies up to 500 MHz and current-carrying capacity in industrial environments.

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This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



48B/3165/CD

COMMITTEE DRAFT (CD)

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SUPERSEDES DOCUMENTS:
48B/3096/RR

IEC SC 48B : ELECTRICAL CONNECTORS

SECRETARIAT:
United States of America

SECRETARY:
Mr Jeffrey Toran

OF INTEREST TO THE FOLLOWING COMMITTEES:

HORIZONTAL FUNCTION(S):

ASPECTS CONCERNED:

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 local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Connectors for electrical and electronic equipment - Product requirements - Part 3-122: Detail specification for 8-way, shielded, free and fixed connectors for I/O and data transmission with frequencies up to 500 MHz and current-carrying capacity in industrial environments

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CONTENTS

1			
2	FOREWORD		4
3	1 Scope		7
4	2 Normative references		7
5	3 Terms and definitions		9
6	4 Mating information		9
7	4.1 General.....		9
8	4.2 Contacts – Mating conditions		11
9	4.3 Fixed connectors Type I and II		11
10	4.4 Free connectors Type I and II		14
11	5 Characteristics		15
12	5.1 General.....		15
13	5.2 Pin and pair grouping assignment		16
14	5.3 Classification into climatic category		17
15	5.4 Electrical characteristics		17
16	5.4.1 Voltage proof.....		17
17	5.4.2 Voltage rating		17
18	5.4.3 Creepage and clearance distances		17
19	5.4.4 Current-temperature derating.....		18
20	5.4.5 Insulation resistance		19
21	5.5 Mechanical characteristics		19
22	5.5.1 Mechanical operation.....		19
23	5.5.2 Insertion and withdrawal forces		19
24	5.5.3 Vibration, sinusoidal		19
25	5.5.4 Shock		19
26	5.6 Transmission performance		20
27	5.6.1 General		20
28	5.6.2 Insertion loss		20
29	5.6.3 Return loss		20
30	5.6.4 Near-end cross talk (NEXT).....		20
31	5.6.5 Far-end cross talk (FEXT).....		21
32	5.6.6 Transverse conversion loss (TCL)		21
33	5.6.7 Transverse conversion transfer loss (TCTL)		21
34	5.6.8 Transfer impedance		21
35	5.6.9 Propagation delay.....		21
36	5.6.10 Delay skew		22
37	6 Tests and test schedule		22
38	6.1 General.....		22
39	6.2 Arrangement for input-to-output resistance test.....		22
40	6.3 Arrangement for vibration and shock test (test phase EP1)		23
41	6.4 Test procedures and measuring methods.....		24
42	6.5 Preconditioning		24
43	6.6 Test schedules.....		24
44	6.6.1 General		24
45	6.6.2 Basic (minimum) test schedule		24

46	6.6.3 Full test schedule	24
47	6.7 Mounting of specimens	31
48	Bibliography	33
49		
50	Figure 1 – Product overview	6
51	Figure 2 – Contact interface of a free male connector (right side) mated with a fixed	
52	female connector (left side)	11
53	Figure 3 – Fixed connectors	12
54	Figure 4 – Free connectors Type I (left) and Type II (right)	14
55	Figure 5 – Fixed connector pin and pair grouping assignment for Type I and Type II,	
56	mating face view of connector	16
57	Figure 6 – Connector derating curve	18
58	Figure 7 – Arrangement for input-to-output resistance test	23
59	Figure 8 – Arrangement for vibration test	23
60		
61	Table 1 – Mating faces of the individual connector styles	10
62	Table 2 – Dimensions for Figure 2 and Figure 3	13
63	Table 3 – Dimensions for Figure 4	15
64	Table 4 – Pin and pair assignment for 10/100 Mbps Ethernet	16
65	Table 5 – Pin and pair assignment for 1/10 Gbps Ethernet	16
66	Table 6 – Climatic category	17
67	Table 7 – Voltage proof	17
68	Table 8 – Creepage and clearance distances of the mating interface	18
69	Table 9 – Vibration, sinusoidal	19
70	Table 10 – Shock	19
71	Table 11 – Test group P	25
72	Table 12 – Test group AP	26
73	Table 13 – Test group BP	27
74	Table 14 – Test group CP	29
75	Table 15 – Test group DP	30
76	Table 16 – Test group EP	30
77	Table 17 – Test group FP	31
78		
79		

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –
PRODUCT REQUIREMENTS –****Part 3-122: Detail specification for 8-way, shielded, free and fixed
connectors for I/O and data transmission with frequencies up to
500 MHz and current-carrying capacity in industrial environments**

FOREWORD

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International Standard IEC 61076-3-122 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

This second edition cancels and replaces the first edition published in 2017. This edition constitutes a technical revision.

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

- a) Title modified.
- b) Introduction of two sets of requirements for connectors of "class A" and "class B" where class A matches the requirements defined in the previous edition.

- c) Definition of new performance requirements for frequencies up to 500 MHz in addition to the performance requirements up to 100 MHz provided with the previous edition.
- d) Re-structuring to reflect the commonalities of and differences between connector Type I and Type II.
- e) Revision of drawings to clarify some dimensions.
- e) The derating diagram has been corrected to align it with the upper limiting temperature in the climatic category, with no reduction of performance for the target applications.

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

FDIS	Report on voting
48B/2864/FDIS	48B/2877/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

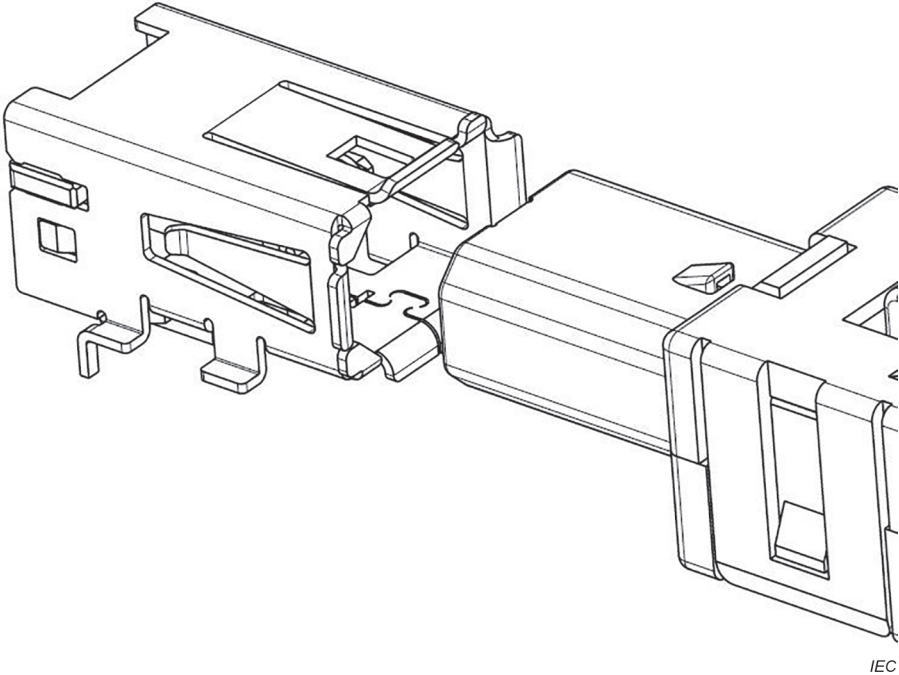
A list of all parts in the IEC 61076 series, published under the general title *Connectors for electrical and electronic equipment – Product requirements*, can be found on the IEC website.

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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

157

Subcommittee 48B: Electrical connectors		IEC 61076-3-122 Ed. 2
 Figure 1 – Product overview		Detail specification for 8-way, shielded, free and fixed connectors for I/O and data transmission with frequencies up to 500 MHz and current-carrying capacity in industrial environments
NOTE Figure 1 shows a Type I connector pair, with coding edges on a short side; for Type II connectors the coding edges are located on a long side.		Fixed connectors are mounted on printed circuit board by means of soldering or press-in, the free connector is attached to wires by means of soldering, crimping, IDC or other termination technology.

158

159

160

CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 3-122: Detail specification for 8-way, shielded, free and fixed connectors for I/O and data transmission with frequencies up to 500 MHz and current-carrying capacity in industrial environments

1 Scope

This part of IEC 61076 covers 8-way, shielded, free and fixed rectangular connectors for I/O and data transmission with frequencies up to 500 MHz. It is intended to specify the common dimensions, mechanical, electrical and environmental characteristics and tests for this family of connectors.

Connectors complying with this document provide an ingress protection level of IP20; however, they are particularly suited for industrial environments with a high level of vibration.

NOTE 1 In terms of the MICE system as defined in ISO/IEC 11801-1, the connector matches the requirements of the M₃I₁C₃E₃ levels.

There are two classes of connectors defined in this document, indicated by "class A" and "class B" which are distinguished by some electrical and mechanical characteristics to meet the particular sets of requirements of some industrial applications.

NOTE 2 Class A meets the requirements defined in Ed.1 of this document.

NOTE 3 With the two classes A and B, the two codings Type I and II, and the two sets of transmission requirements according to the component categories Cat 5 and Cat 6_A as defined in ISO/IEC 11801-1, this document specifies 2 × 2 × 2 = 8 variants.

All connectors covered by this document feature a current-carrying capacity beyond the minimum requirement of 0,75 A per pin for an ambient temperature of 60° C as defined in ISO/IEC 11801-1.

NOTE 4 The current-carrying capacity is given by the current-temperature derating defined in this document and is dependent on the wire size of the cable attached to the connector.

NOTE 5 With a current-carrying capacity of 0,5 A per pin and with matching the requirement of withstanding the test current of 2 A for unmating under load as defined in IEC 60512-99-002, the connectors covered by this document support the highest Power over Ethernet level as defined by IEEE 802.3bt (100 W PoE++ Type 4).

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 60050-581, *International Electrotechnical Vocabulary (IEV) – Part 581: Electromechanical components for electronic equipment*

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

- 202 IEC 60068-2-38, *Basic environmental testing procedures – Part 2-38: Tests – Test Z/AD: Composite temperature/humidity cyclic test*
203
- 204 IEC 60512-1, *Connectors for electrical and electronic equipment – Tests and measurements – Part 1: Generic specification*
205
- 206 IEC 60512-1-1, *Connectors for electronic equipment – Tests and measurements – Part 1-1: General examination – Test 1a: Visual examination*
207
- 208 IEC 60512-1-2, *Connectors for electronic equipment – Tests and measurements – Part 1-2: General examination – Test 1b: Examination of dimension and mass*
209
- 210 IEC 60512-2-1, *Connectors for electronic equipment – Tests and measurements – Part 2-1: Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method*
211
212
- 213 IEC 60512-3-1, *Connectors for electronic equipment – Tests and measurements – Part 3-1: Insulation tests – Test 3a: Insulation resistance*
214
- 215 IEC 60512-4-1, *Connectors for electronic equipment – Tests and measurements – Part 4-1: Voltage stress tests – Test 4a: Voltage proof*
216
- 217 IEC 60512-5-2, *Connectors for electronic equipment – Tests and measurements – Part 5-2: Current-carrying capacity tests – Test 5b: Current-temperature derating*
218
- 219 IEC 60512-6-3, *Connectors for electronic equipment – Tests and measurements – Part 6-3: Dynamic stress tests – Test 6c: Shock*
220
- 221 IEC 60512-6-4, *Connectors for electronic equipment – Tests and measurements – Part 6-4: Dynamic stress tests – Test 6d: Vibration (sinusoidal)*
222
- 223 IEC 60512-9-1, *Connectors for electronic equipment – Tests and measurements – Part 9-1: Endurance tests – Test 9a: Mechanical operation*
224
- 225 IEC 60512-11-3, *Connectors for electronic equipment – Tests and measurements – Part 11-3: Climatic tests – Test 11c: Damp heat, steady state*
226
- 227 IEC 60512-11-4, *Connectors for electronic equipment – Tests and measurements – Part 11-4: Climatic tests – Test 11d: Rapid change of temperature*
228
- 229 IEC 60512-11-7, *Connectors for electronic equipment – Tests and measurements – Part 11-7: Climatic tests – Test 11g: Flowing mixed gas corrosion test*
230
- 231 IEC 60512-11-9, *Connectors for electronic equipment – Tests and measurements – Part 11-9: Climatic tests – Test 11i: Dry heat*
232
- 233 IEC 60512-11-10, *Connectors for electronic equipment – Tests and measurements – Part 11-10: Climatic tests – Test 11j: Cold*
234
- 235 IEC 60512-13-2, *Connectors for electronic equipment – Tests and measurements – Part-13-2: Mechanical operation tests – Test 13b: Insertion and withdrawal forces*
236
- 237 IEC 60512-15-6, *Connectors for electronic equipment – Tests and measurements – Part 15-6: Connector tests (mechanical) – Test 15f: Effectiveness of connector coupling devices*
238

IEC 60512-26-100, *Connectors for electronic equipment – Tests and measurements – Part 26-100: Measurement setup, test and reference arrangements and measurements for connectors according to IEC 60603-7 – Tests 26a to 26g*

IEC 60512-28-100, *Connectors for electrical and electronic equipment – Tests and measurements – Part 28-100: Signal integrity tests up to 2 000 MHz – Tests 28a to 28g*

IEC 60512-99-002, *Connectors for electrical and electronic equipment – Tests and measurements – Part-99-002: Endurance test schedules – Test 99b, Test schedule for unmating under electrical load*

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

IEC 61076-1:2006, *Connectors for electronic equipment – Product requirements – Part 1: Generic specification*
IEC 61076-1:2006/AMD1:2019

IEC 61076-3, *Connectors for electronic equipment – Product requirements – Part 3: Rectangular connectors – Sectional specification*

IEC TR 63040, *Guidance on clearances and creepage distances in particular for distances equal to or less than 2 mm – Test results of research on influencing parameters*

ISO/IEC 11801-1, *Information technology – General cabling for customer premises – Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-581, IEC 61076-1, IEC 61076-3 and IEC 60512-1 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>

4 Mating information

4.1 General

Dimensions are given in millimetres. Drawings are shown in third-angle projection. The shape of connectors may deviate from those given in Table 1 and Figure 2 through Figure 4 as long as the dimensions specified are not changed.

Two types of connectors are defined, which can be used to distinguish between different networks within the same building or premises.