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Responsible committee: EPL/48 Electromechanical components and mechanical structures for electronic equipment

Interested committees:

Title: Draft BS IEC 61076-3-126 Connectors for electrical and electronic equipment - Product requirements . Part 3-126: Rectangular connectors - Detail specification for 5way power connector for industrial environments with push-pull locking.

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- iii) requires additional national guidance or information

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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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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	Commend (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/2731/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER: IEC 61076-3-126 ED1	
DATE OF CIRCULATION: 2019-03-08	CLOSING DATE FOR COMMENTS: 2019-05-31
SUPERSEDES DOCUMENTS: 48B/2596/NP,48B/2620A/RVN	

IEC SC 48B : ELECTRICAL CONNECTORS	
SECRETARIAT: United States of America	SECRETARY: Mr Jeffrey Toran
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	

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.

TITLE:
Connectors for electrical and electronic equipment - Product requirements – Part 3-126: Rectangular connectors - Detail specification for 5way power connector for industrial environments with push-pull locking

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –
PRODUCT REQUIREMENTS –****Part 3-126: Rectangular connectors -
Detail specification for 5way power connector for industrial environments
with push-pull locking**

FOREWORD

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International Standard IEC 61076-3-1xx has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

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

164 The committee has decided that the contents of this publication will remain unchanged until
165 the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data
166 related to the specific publication. At this date, the publication will be

- 167 • reconfirmed,
168 • withdrawn,
169 • replaced by a revised edition, or
170 • amended.

171

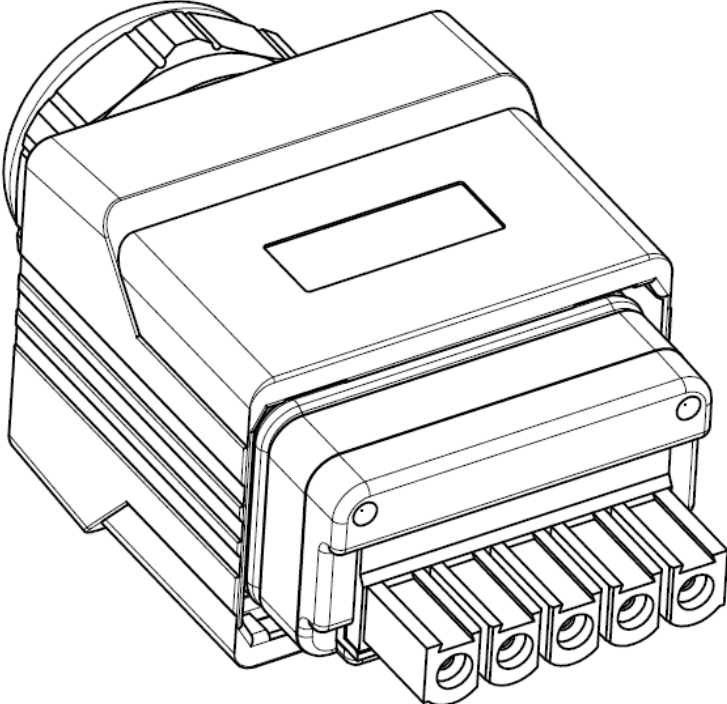
172 The National Committees are requested to note that for this publication the stability date
173 is

174 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE
175 DELETED AT THE PUBLICATION STAGE.

176

177

INTRODUCTION

IEC SC 48B – Electrical connectors Specification available from: IEC General secretariat or from the addresses shown on the inside cover.	IEC 61076-3-126 Ed.1
DETAIL SPECIFICATION in accordance with IEC 61076-1	
	Rectangular connectors Detail specification for power connectors for industrial environments with push-pull locking Male and female connectors Male and female contacts Rewirable – Non-rewirable
	Free cable connectors Straight and right angle connectors Fixed connectors Flange mounting Single hole mounting

CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 3-126: Rectangular connectors - Detail specification for 5way power connectors for industrial environments with push-pull locking

1 Scope

This document covers rectangular IP65/IP67 connectors with 5 poles for electric power supply up to 16 A per pole. These connectors consist of fixed and free connectors, either rewirable or non rewirable (for both portions). It uses the general function principles of the push-pull connector housing system described in IEC 61076-3-117 with IP65/IP67 degree of protection according to IEC 60529 for harsh applications.

Male connectors have 5 square 1 mm electric contacts, with 16 A rated current. Connectors according this document are without breaking capacity COC according to IEC 61984, therefore they are not intended to be engaged or disengaged in normal use when live or under load, if not otherwise specified by the manufacturer.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-195:1998/AMD1:2001: *International Electrotechnical Vocabulary - Part 195: Earthing and protection against electric shock*

IEC 60050-581:2008: *International Electrotechnical Vocabulary – Chapter 581: Electro-mechanical components for electronic equipment*

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

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

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

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

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

IEC 60352-6: *Solderless connections - Part 6: Insulation piercing connections - General requirements, test methods and practical guidance*

IEC 60352-7: *Solderless connections - Part 7: Spring clamp connections - General requirements, test methods and practical guidance*

IEC 60352-8: *Solderless connections - Part 8: Compression mount connections - General requirements, test methods and practical guidance*

IEC 60512-1-1: *Connectors for electronic equipment - Tests and measurements - Part 1-1: General examination - Test 1a: Visual examination*

- 226 IEC 60512-1-2:2002: Connectors for electronic equipment - Tests and measurements - Part
227 1-2: General examination - Test 1b: Examination of dimension and mass
- 228 IEC 60512-2-1:2002: *Connectors for electronic equipment - Tests and measurements - Part 2-
229 1: Electrical continuity and contact resistance tests - Test 2a: Contact resistance - Millivolt
230 level method*
- 231 IEC 60512-2-2: *Connectors for electronic equipment - Tests and measurements - Part 2-2:
232 Electrical continuity and contact resistance tests - Test 2b: Contact resistance - Specified test
233 current method*
- 234 IEC 60512-2-6: *Connectors for electronic equipment - Tests and measurements - Part 2-6:
235 Electrical continuity and contact resistance tests - Test 2f: Housing (shell) electrical continuity*
- 236 IEC 60512-3-1:2002: *Connectors for electronic equipment - Tests and measurements - Part 3-
237 1: Insulation tests - Test 3a: Insulation resistance*
- 238 IEC 60512-4-1:2003: *Connectors for electronic equipment - Tests and measurements - Part 4-
239 1: Voltage stress tests - Test 4a: Voltage proof*
- 240 IEC 60512-5-2:2002: *Connectors for electronic equipment - Tests and measurements - Part 5-
241 2: Current-carrying capacity tests - Test 5b: Current-temperature derating*
- 242 IEC 60512-6-3:2002: *Connectors for electronic equipment - Tests and measurements - Part 6-
243 3: Dynamic stress tests - Test 6c: Shock*
- 244 IEC 60512-6-4:2002: *Connectors for electronic equipment - Tests and measurements - Part 6-
245 4: Dynamic stress tests - Test 6d: Vibration (sinusoidal)*
- 246 IEC 60512-8-1:2010: *Connectors for electronic equipment - Tests and measurements - Part 8-
247 1: Static load tests (fixed connectors) - Test 8a: Static load, transverse*
- 248 IEC 60512-8-2:2011: *Connectors for electronic equipment - Tests and measurements - Part 8-
249 2: Static load tests (fixed connectors) - Test 8b: Static load, axial*
- 250 IEC 60512-9-1:2010: *Connectors for electronic equipment - Tests and measurements - Part 9-
251 1: Endurance tests - Test 9a: Mechanical operation*
- 252 IEC 60512-13-1:2006: *Connectors for electronic equipment - Tests and measurements - Part
253 13-1: Mechanical operation tests - Test 13a: Engaging and separating forces*
- 254 IEC 60512-13-5:2006: *Connectors for electronic equipment - Tests and measurements - Part
255 13-5: Mechanical operation tests - Test 13e: Polarizing and keying method*
- 256 IEC 60512-15-6:2008: *Connectors for electronic equipment – Tests and measurements – Part
257 15-6: Connector tests (mechanical) – Test 15f: Effectiveness of connector coupling devices*
- 258 IEC 60512-5-2: *Connectors for electronic equipment - Tests and measurements - Part 5-2:
259 Current-carrying capacity tests - Test 5b: Current-temperature derating*
- 260 IEC 60512-6-1: *Connectors for electronic equipment - Tests and measurements - Part 6-1:
261 Dynamic stress tests - Test 6a: Acceleration, steady state*
- 262 IEC 60512-6-2: *Connectors for electronic equipment - Tests and measurements - Part 6-2:
263 Dynamic stress tests - Test 6b: Bump*
- 264 IEC 60512-6-3: *Connectors for electronic equipment - Tests and measurements - Part 6-3:
265 Dynamic stress tests - Test 6c: Shock*
- 266 IEC 60512-6-4: *Connectors for electronic equipment - Tests and measurements - Part 6-4:
267 Dynamic stress tests - Test 6d: Vibration (sinusoidal)*
- 268 IEC 60512-8-1: *Connectors for electronic equipment - Tests and measurements - Part 8-1:
269 Static load tests (fixed connectors) - Test 8a: Static load, transverse*

- 270 IEC 60512-8-2: *Connectors for electronic equipment - Tests and measurements - Part 8-2:*
271 *Static load tests (fixed connectors) - Test 8b: Static load, axial*
- 272 IEC 60512-9-1: *Connectors for electronic equipment - Tests and measurements - Part 9-1:*
273 *Endurance tests - Test 9a: Mechanical operation*
- 274 IEC 60512-13-1: *Connectors for electronic equipment - Tests and measurements - Part 13-1:*
275 *Mechanical operation tests - Test 13a: Engaging and separating forces*
- 276 IEC 60512-13-5: *Connectors for electronic equipment - Tests and measurements - Part 13-5:*
277 *Mechanical operation tests - Test 13e: Polarizing and keying method*
- 278 IEC 60512-15-6: *Connectors for electronic equipment - Tests and measurements - Part 15-6:*
279 *Connector tests (mechanical) - Test 15f: Effectiveness of connector coupling devices*
- 280 IEC 60529: *Degrees of protection provided by enclosures (IP Code)*
- 281 IEC 60664-1:2007: *Insulation coordination for equipment within low-voltage systems - Part 1:*
282 *Principles, requirements and tests*
- 283 IEC 60999-1:1999: *Connecting devices - Electrical copper conductors - Safety requirements*
284 *for screw-type and screwless-type clamping units - Part 1: General requirements and*
285 *particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm²*
286 *(included)*
- 287 IEC 60998-2-1:2002: *Connecting devices for low-voltage circuits for household and similar*
288 *purposes - Part 2-1: Particular requirements for connecting devices as separate entities with*
289 *screw-type clamping units*
- 290 IEC 61076-1:2006: *Connectors for electronic equipment - Product requirements - Part 1:*
291 *Generic specification*
- 292 IEC 61076-3:2008: *Connectors for electronic equipment - Product requirements - Part 3:*
293 *Sectional specification for rectangular connectors*
- 294 IEC 61076-3-117: *Connectors for electronic equipment - Product requirements - Part 3-117:*
295 *Rectangular connectors - Detail specification for protective housings for use with 8-way*
296 *shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7*
297 *series interface - Variant 14 related to IEC 61076-3-106 - Push pull coupling*
- 298 IEC 61984:2008: *Connectors - Safety requirements and tests*
- 299 IEC GUIDE 109: *Environmental aspects - Inclusion in electrotechnical product standards*
- 300 IEC GUIDE 114: *Environmentally conscious design - Integrating environmental aspects into*
301 *design and development of electrotechnical products*
- 302 ISO 128-30:2001: *Technical drawings - General principles of presentation - Part 30: Basic*
303 *conventions for views*
- 304 ISO 1302:2002: *Geometrical Product Specifications (GPS) -- Indication of surface texture in*
305 *technical product documentation*
- 306 ISO 11469:2016: *Plastics -- Generic identification and marking of plastics products*
- 307 **3 Terms and definitions**
- 308 For the purposes of this document, the terms and definitions given in IEC 60050-581 as well
309 as the following apply.
- 310 ISO and IEC maintain terminological databases for use in standardization at the following
311 addresses:
- 312 IEC Electropedia: available at <http://www.electropedia.org/>

ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

protective conductor (PE)

conductor provided for purposes of safety, for example protection against electric shock

Note to entry: In an electrical installation, the conductor identified PE is normally also considered as protective earthing conductor.

3.2

functional earth conductor (FE)

earthing conductor provided for functional earthing

Note to entry: functional earthing a point or points in a system or in an installation or in equipment, for purposes other than electrical safety.

[IEC 60050-195, AMD1:2001, 195-01-13]

4 Technical information

4.1 Systems of levels

4.1.1 Performance levels

See Table 9

4.1.2 Compatibility levels, according to IEC 61076-1:2006

Connectors according to this standard are deemed to be intermateable.

4.2 Classification into climatic categories

Table 1 shows the climatic category.

Table 1 – Climatic category

Climatic category	Category temperature		Damp heat steady state		Days
	Lower °C	Upper °C	Temperature °C	Rel. humidity %	
25/070/21	–25	+70	40	93	21

4.3 Clearance and creepage distances

Creepage and clearance distances shall meet the requirements given in 6.4.1.

4.4 Current-carrying capacity

See 6.4.3.

4.5 Marking

The marking of the connector and the package shall be in accordance with 2.7 of IEC 61076-1:2006.

5 Dimensional information

5.1 Common features

Connectors meant to comply with IP ratings per IEC 60529 shall be appropriately mated and sealed in order to meet the requirements detailed in the test schedules in 7.2.

5.2 Reference system

Coordination dimensions are dimensions without tolerances which indicate the boundary or centre-line references in order to allow arrangement.

Dimensions are given in millimetres, drawings are shown in first angle projection according ISO 128-30. The shape of connectors may deviate from those shapes given in the following figures as long as the specified dimensions are not influenced.