SLOVENSKI STANDARD
oSIST prEN IEC 63171-5:2021

01-december-2021

Konektorji za električno in elektronsko opremo - 5. del: Podrobna specifikacija za 2-redne okrogle konektorje M8 in M12, zaslonjene ali nezaslonjene, proste ali pritrjene - Informacije o mehanskih prilagoditvah, funkcije polov in dodatne zahteve za tip 5

Connectors for electrical and electronic equipment - Part 5: Detail specification for 2-way M8 and M12 circular connectors, shielded or unshielded, free and fixed - Mechanical mating information, pin assignment and additional requirements for Type 5

Ta slovenski standard je istoveten z: **prEN IEC 63171-5:2021**

ICS:

31.220.10	Vtiči in vtičnice, konektorji	Plug-and-socket devices. Connectors

oSIST prEN IEC 63171-5:2021 **en**

48B/2912/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 63171-5 ED1	
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2021-10-15	**2022-01-07**
SUPERSEDES DOCUMENTS:	
48B/2809/CDV, 48B/2905/RVC	

IEC SC 48B : ELECTRICAL CONNECTORS	
SECRETARIAT: United States of America	SECRETARY: Mr Jeffrey Toran
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 65C,ISO/IEC JTC 1/SC 25	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	
☐ SUBMITTED FOR CENELEC PARALLEL VOTING	☒ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Connectors for electrical and electronic equipment – Part 5: Detail specification for 2-way M8 and M12 circular connectors, shielded or unshielded, free and fixed – Mechanical mating information, pin assignment and additional requirements for Type 5

PROPOSED STABILITY DATE: 2024

NOTE FROM TC/SC OFFICERS:

Project title has been changed. Original title: Connectors for electrical and electronic equipment – Product requirements - Part 5: Detail specification for circular connectors with up to 8 ways, shielded or unshielded, free and fixed connectors: mechanical mating information, pin assignment and additional requirements for type 5

CONTENTS

119

120 INTERNATIONAL ELECTROTECHNICAL COMMISSION

121

122 **CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –**

123

124 **Part 5: Detail specification for 2-way M8 and M12 circular connectors,**
125 **shielded or unshielded, free and fixed – Mechanical mating information,**
126 **pin assignment and additional requirements for Type 5**

127

128

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162 International Standard IEC 63171-5 has been prepared by subcommittee 48B: Electrical
163 connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for
164 electrical and electronic equipment

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

FDIS	Report on voting
48B/XX/FDIS	48B/XX/RVD

166

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

169 A list of all parts of IEC 63171 series, under the general title *Connectors for electronic*
170 *equipment*, can be found on the IEC website.

171

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

173 The committee has decided that the contents of this publication will remain unchanged until the
174 stability date[1] indicated on the IEC web site under "http://webstore.iec.ch" in the data related
175 to the specific publication. At this date, the publication will be

176 • reconfirmed,
177 • withdrawn,
178 • replaced by a revised edition, or
179 • amended.

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INTRODUCTION

IEC 63171 is the base specification of the whole series. Subsequent specifications do not duplicate information given in the base document, but list only additional requirements. For complete specification regarding a component of a higher number document all lower numbered documents must be considered as well. The following diagram shows the interrelation of the documents:

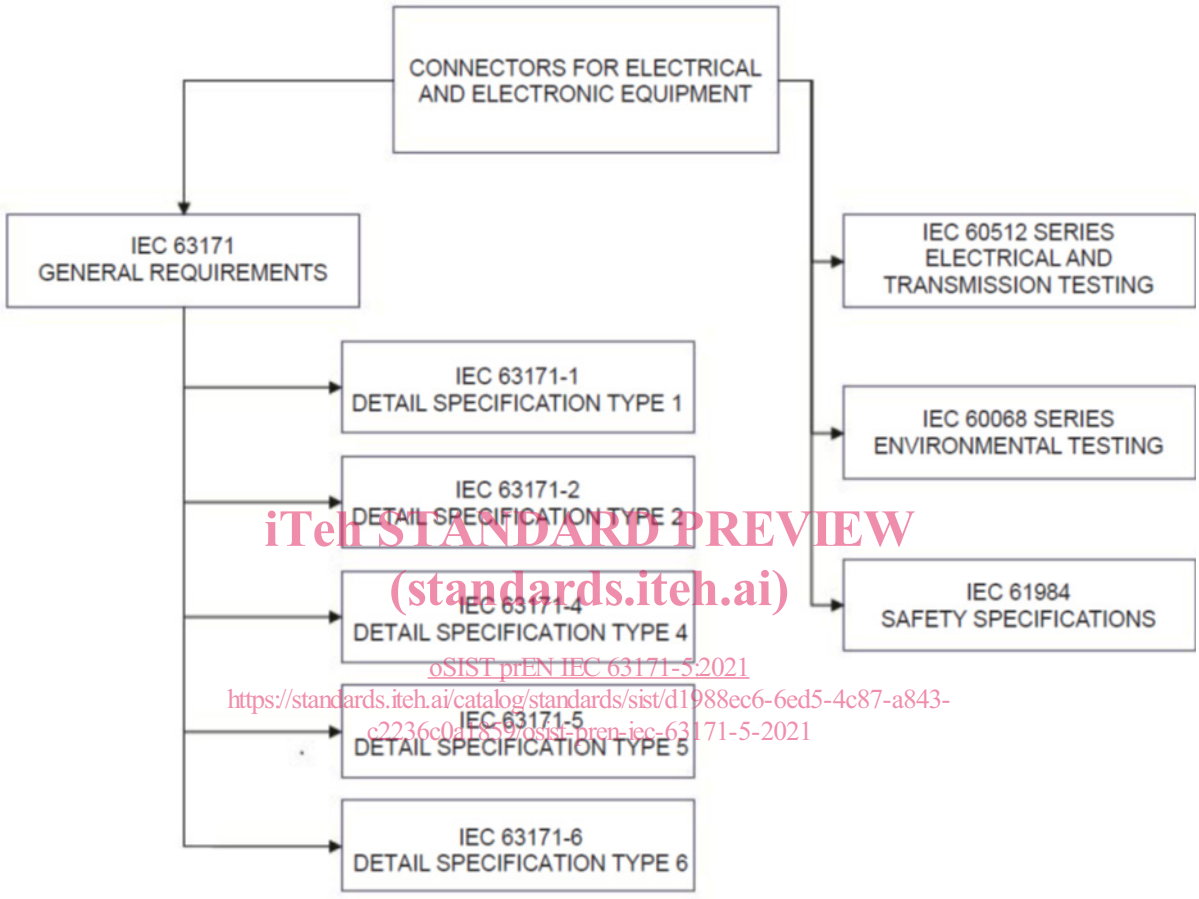
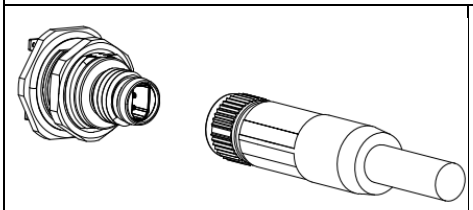
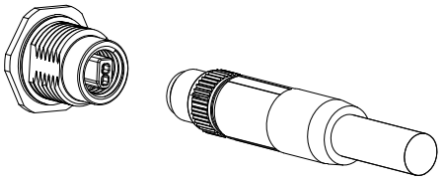


Figure 1 – Relationships between the IEC 63171 series and their related references

NOTE – IEC 63171-1 and IEC 63171-6 contain duplicate information, which is either equal to or better than the minimum requirements of this standard; such duplicate information is due to be removed in later editions.

This document refers to International Standards for test and measurement, environmental testing as well as solderless connections.

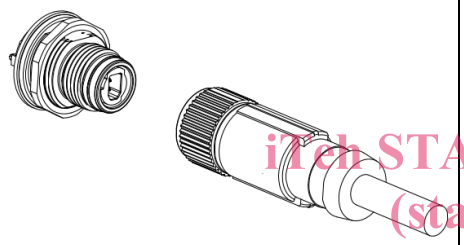
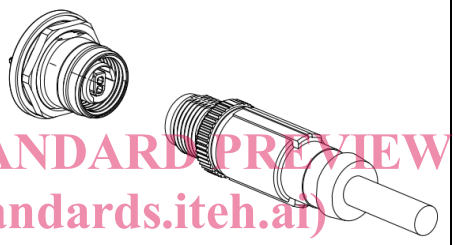
<table>
<tr><td colspan="2">IEC SC 48B – Electrical connectors

Specification available from:
IEC General secretariat
or from the addresses shown on the inside cover.</td><td>IEC 63171-5 Ed. 1</td></tr>
<tr><td> 
Fixed Connector: M8 outer thread and male contacts
Free connector: M8 inner thread and female contacts</td><td> 
Fixed Connector: M8 inner thread and female contacts
Free connector: M8 outer thread and male contacts</td><td rowspan="2">Circular connectors for data and power applications with 2 ways in a M8 and in a M12 style system

Male and female connectors
Male and female contacts

Rewireable – Non-rewireable

Free cable connectors
Straight and angled connectors

Fixed connectors
Flange mounting
Single hole mounting</td></tr>
<tr><td> 
Fixed Connector: M12 outer thread and male contacts
Free connector: M12 inner thread and female contacts</td><td> 
Fixed Connector: M12 inner thread and female contacts
Free connector: M12 outer thread and male contacts</td></tr>
<tr><td colspan="3">Figure 2 – Type 5 connector overview</td></tr>
</table>

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CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –

Part 5: Detail specification for 2-way M8 and M12 circular connectors, shielded or unshielded, free and fixed – Mechanical mating information, pin assignment and additional requirements for Type 5

1 Scope

This part of IEC 63171 describes shielded or unshielded circular connectors with 2 ways and M8 or M12 Styles, typically used for data transmission up to 600 MHz and with current-carrying capacity up to 4 A, for use in areas with harsh environmental conditions. These connectors consist of fixed and free connectors either rewirable or non-rewirable. Male connectors have square cross- section contacts, for data and power transmission.

M12 describes the dimensions of the styles and thread of the screw-locking mechanism according IEC 61076-2-101 of this size of circular connectors. M8 describes the dimensions of the styles and thread of the screw-locking mechanism according IEC 61076-2-104. The use of alternative locking mechanisms according to IEC 61076-2-010 or IEC 61076-2-011 are possible.

The coding provided by this standard prevents the mating of accordingly coded male or female connectors to other similarly sized interfaces covered by this or other standards.

These Type 5 connectors are interoperable with Type 2 connectors according IEC 63171-2, except the locking and sealing system provided by the outer shell.

The shielded and unshielded connectors are interoperable for their internal transmission performance and can be exchanged. The shielded version has improved EMC and coupling properties.

This part of IEC 63171 covers Type 5 connectors. Each part of this series has the associated type number equal to the number of the part in the series. All connectors in the IEC 63171 series are deemed to provide the same functions as defined in IEC 63171:2021, using different mechanical interfaces.

2 Normative references

In addition to the normative references in IEC 63171:2021, 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 Guide 109: *Environmental aspects – Inclusion in electrotechnical product standards.*

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

IEC 60512-1: *Connectors for electrical and electronic equipment - Tests and measurements - Part 1: Generic specification*

IEC 60512-5-2:2002: *Connectors for electronic equipment - Tests and measurements - Part 5-2: Current-carrying capacity tests - Test 5b: Current-temperature derating*

IEC 60512-6-3:2002: *Connectors for electronic equipment - Tests and measurements - Part 6-3: Dynamic stress tests - Test 6c: Shock*

IEC 60512-6-4:2002*: Connectors for electronic equipment - Tests and measurements - Part 6-4: Dynamic stress tests - Test 6d: Vibration (sinusoidal)*

IEC 60512-8-2:2011: *Connectors for electronic equipment - Tests and measurements - Part 8-2: Static load tests (fixed connectors) - Test 8b: Static load, axial*

IEC 60512-13-2:2006: *Connectors for electronic equipment - Tests and measurements - Part 13-2: Mechanical operation tests - Test 13b: Insertion and withdrawal forces*

IEC 60512-13-5:2006: *Connectors for electronic equipment - Tests and measurements - Part 13-5: Mechanical operation tests - Test 13e: Polarizing and keying method*

IEC 60512-15-6:2008: *Connectors for electronic equipment – Tests and measurements – Part 15-6: Connector tests (mechanical) – Test 15f: Effectiveness of connector coupling devices*

IEC 60512-28-100:2013: *Connectors for electronic equipment - Tests and measurements - Part 28-100: Signal integrity tests up to 1 000 MHz on IEC 60603-7 and IEC 61076-3 series connectors - Tests 28a to 28g*

IEC 61076-1: *Connectors for electronic equipment - Product requirements - Part 1: Generic specification*

IEC 61076-2-010: *Connectors for electrical and electronic equipment - Product requirements - Part 2-010: Circular connectors - Detail specification for connectors with outer or inner push-pull locking mechanism, based on mating interfaces according to IEC 61076-2-101, IEC 61076-2-109, IEC 61076-2-111 and IEC 61076-2-113*

IEC 61076-2-011: *Connectors for electrical and electronic equipment - Product requirements - Part 2-011: Circular connectors - Detail specification for B12 bayonet coupling connectors based on mating interfaces according to IEC 61076-2-101 and IEC 61076-2-109*

IEC 61076-2-101: *Connectors for electronic equipment - Product requirements - Part 2-101: Circular connectors - Detail specification for M12 connectors with screw-locking*

IEC 61076-2-104: *Connectors for electronic equipment - Product requirements - Part 2-104: Circular connectors - Detail specification for circular connectors with M8 screw-locking or snap-locking*

IEC 61760-3: *Surface mounting technology - Part 3: Standard method for the specification of components for through hole reflow (THR) soldering*

Surface mounting technology - Part 3: Standard method for the specification of components for through hole reflow (THR) soldering

IEC 62430: *Environmentally conscious design for electrical and electronic products) and the use of material.*

IEC 63171:2021: *Connectors for electrical and electronic equipment – Shielded or unshielded free and fixed connectors for balanced single-pair data transmission with current carrying capacity – General requirements and tests*

IEC 63171-2: *Connectors for electrical and electronic equipment – Part 2: Detail specification for 2-way, shielded or unshielded, free and fixed connectors – Mechanical mating information, pin assignment and additional requirements for Type 2*

ISO/IEC 11801-1: *Information technology - Generic 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 63171:2021, IEC 60050-581, 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