IEC 63171-4

Edition 1.0 2022-08

INTERNATIONAL STANDARD

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Connectors for electrical and electronic equipment – Part 4: Detail specification for shielded or unshielded, free and fixed connectors with up to 8 ways for balanced single-pair data transmission with current carrying capacity – Mechanical mating information, pin assignment and additional requirements for Type 4

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 31.220.10

ISBN 978-2-8322-5608-4

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CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –

Part 4: Detail specification for shielded or unshielded, free and fixed connectors with up to 8 ways for balanced single-pair data transmission with current carrying capacity – Mechanical mating information, pin assignment and additional requirements for Type 4

FOREWORD

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IEC 63171-4 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment. It is an International Standard.

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

Draft	Report on voting
48B/2964/FDIS	48B/2984/RVD

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

The language used for the development of this International Standard is English.

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

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under 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- withdrawn,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.

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INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning contact mating surface dimensions given in 4.1.

The IEC takes no position concerning the evidence, validity, and scope of this patent right.

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ISO (www.iso.org/patents) and IEC (http://patents.iec.ch) maintain on-line data bases of patents relevant to their standards. Users are encouraged to consult the data bases for the most up to date information concerning patents.

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 shall be considered as well. Figure 1 shows the interrelation of the documents.

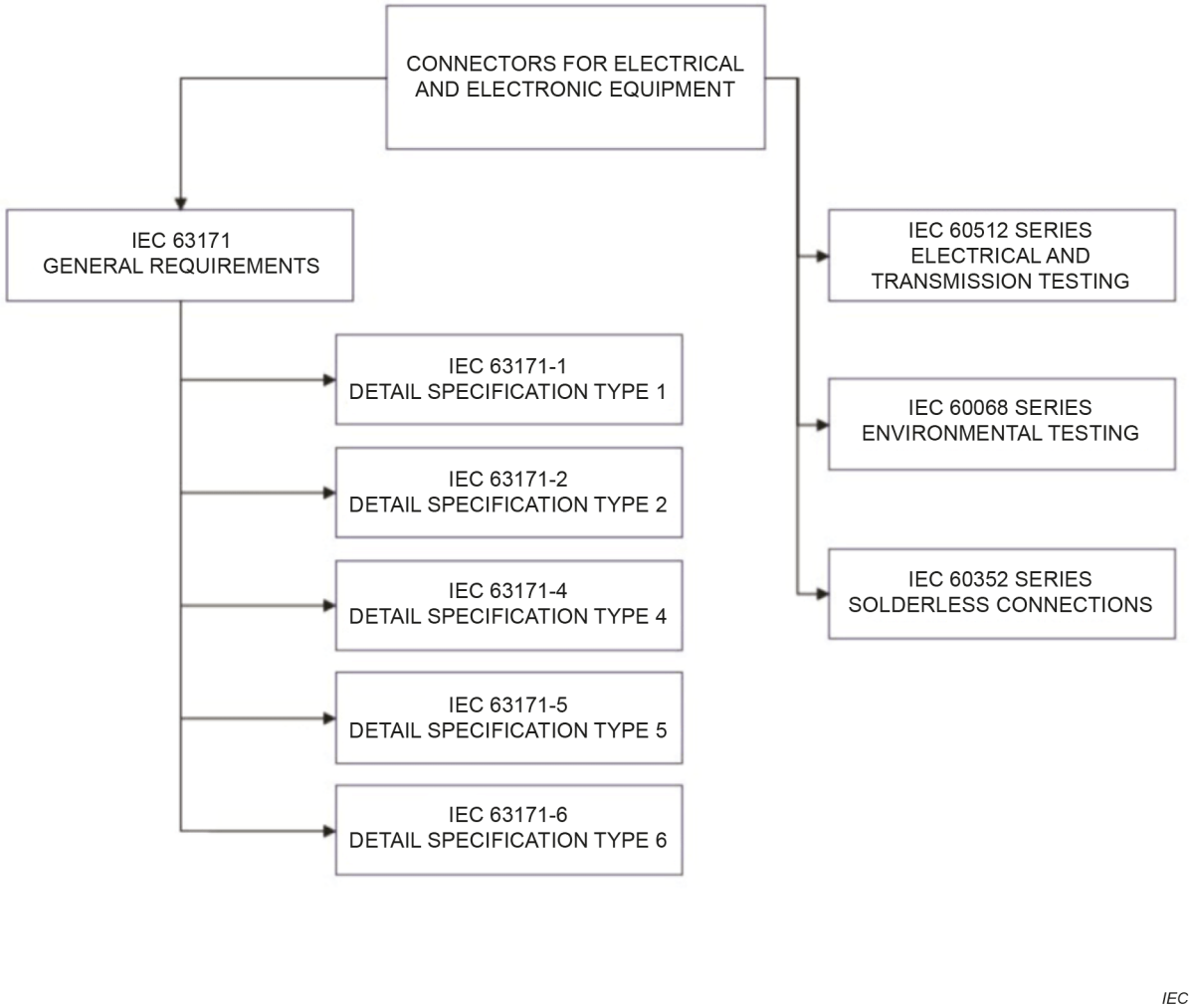
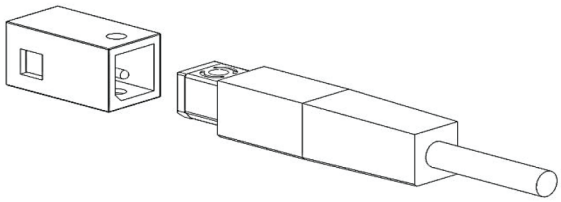
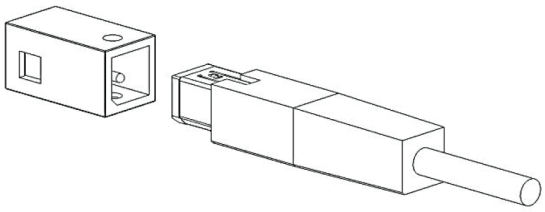
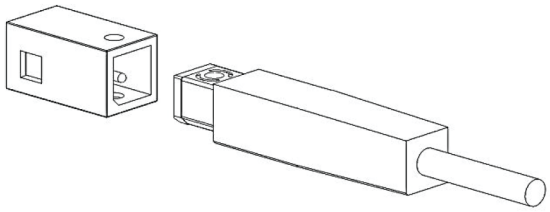
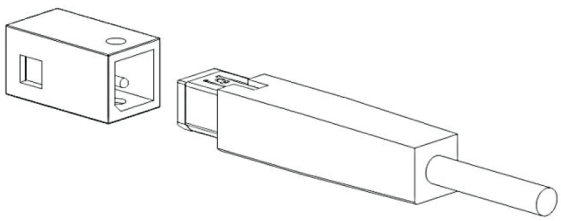


Figure 1 – Relationship between the IEC 63171 series documents and their related references

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

IEC SC 48B – Electrical connectors Specification available from: IEC General secretariat or from the addresses shown on the inside cover.	IEC 63171-4 Ed. 1
DETAIL SPECIFICATION in accordance with IEC 63171	
 IEC	Shielded 1-pair connector with snap- in mechanism
 IEC	Shielded 1-pair connector with locking device
 IEC	Unshielded 1-pair connector with snap-in mechanism
 IEC	Unshielded 1-pair connector with locking device

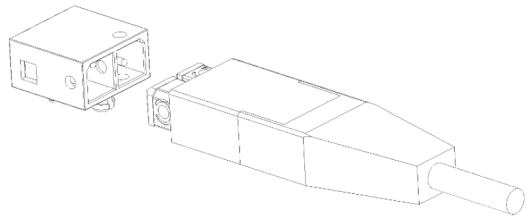
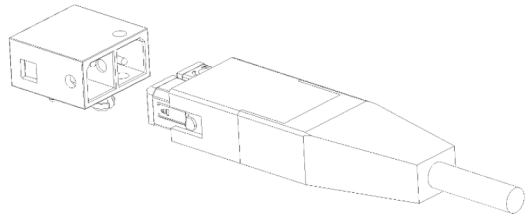
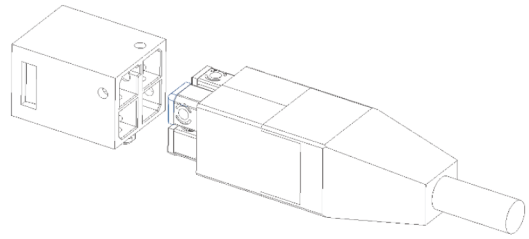
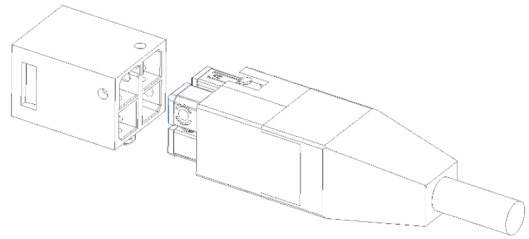
 IEC	Shielded 2-pair connector with snap-in mechanism
 IEC	Shielded 2-pair connector with locking device
 IEC	Shielded 4-pair connector with snap-in mechanism
 IEC	Shielded 4-pair connector with locking device

Figure 2 – Type 4 connector overview

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Part 4: Detail specification for shielded or unshielded, free and fixed connectors with up to 8 ways for balanced single-pair data transmission with current carrying capacity – Mechanical mating information, pin assignment and additional requirements for Type 4

1 Scope

This part of IEC 63171 covers shielded and unshielded free and fixed multimedia connectors (MMC) for data transmission with frequencies up to and above 3 000 MHz for shielded and up to 600 MHz for unshielded connectors, both with current-carrying capacity with up to 8 ways. It specifies the common dimensions, mechanical, electrical and transmission characteristics and environmental requirements as well as test specifications, respectively.

The form factor of these connectors allows their use for cable sharing with TOs (Telecommunications Outlet) for structured cabling.

NOTE The overall performance of the transmission channel in such case is evaluated.

This document covers type 4 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, using different mechanical interfaces.

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.

The connectors are intended to be used for Single Pair Ethernet (SPE) according, but not restricted to the following IEEE standards: 10Base-T1 (IEEE 802.3cg), 100Base-T1 (IEEE 802.3bw), 1000Base-T1 (IEEE 802.3bp), Multi-Gig Base-T1 (IEEE 802.3ch) and optionally with Power over Data line (PoDL) power supply according to IEEE 802.3bu.

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

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

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

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

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*

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*

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