IEC 63171-4

Edition 1.0 2022-09

INTERNATIONAL STANDARD

colour inside

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

IEC 63171-4:2022-09(en)

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC 63171-4

Edition 1.0 2022-08

INTERNATIONAL STANDARD

colour inside

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

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

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

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

The contents of the corrigendum 1 (2023-08) have been included in this copy.

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.

The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document.

Information may be obtained from:

BKS Kabel-Service AG
Fabrikstrasse 8
CH-4552 Derendingen

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

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.

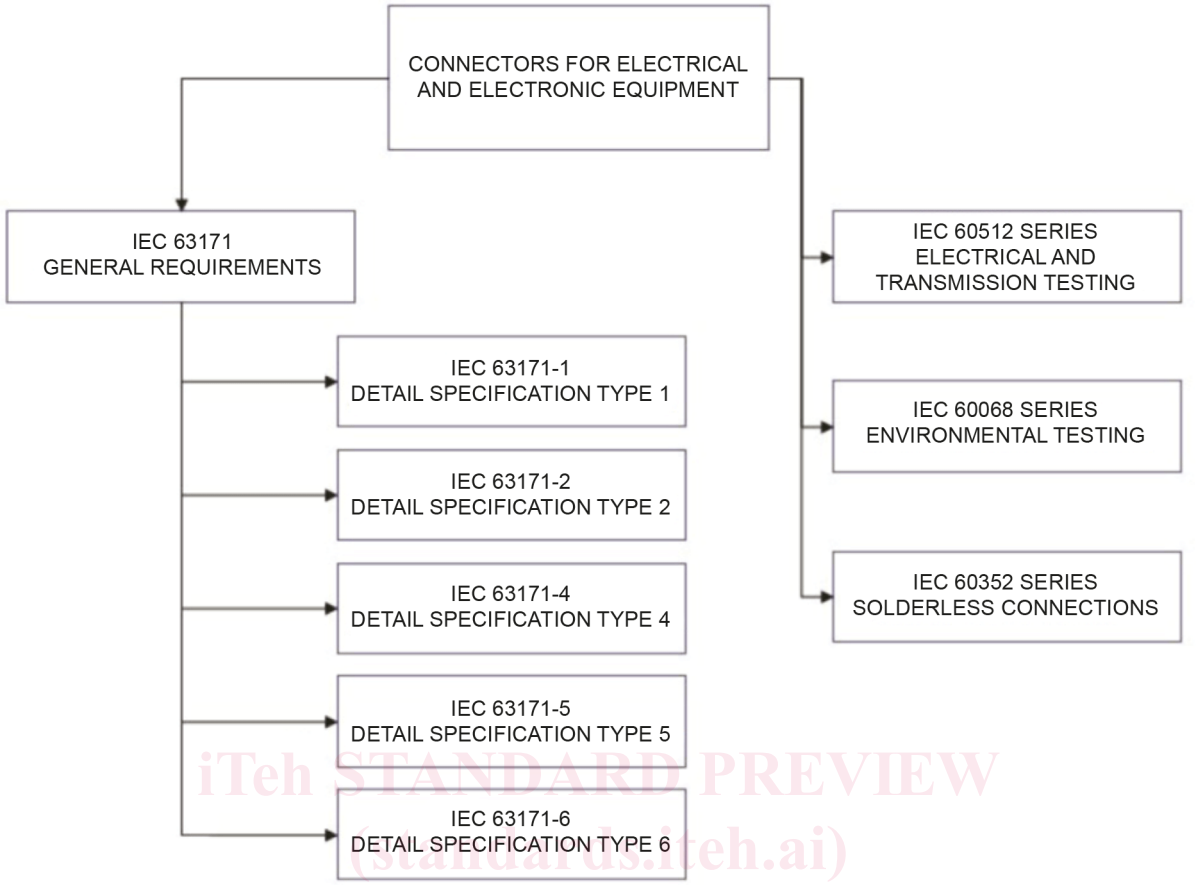
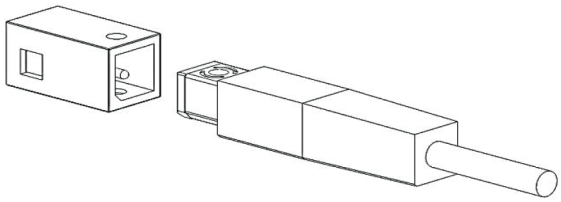
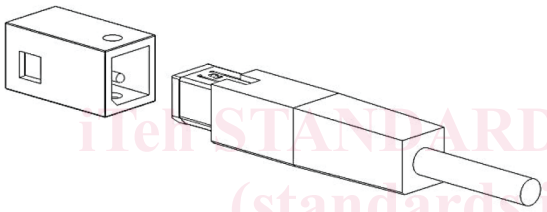
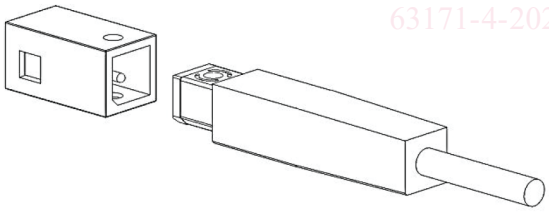
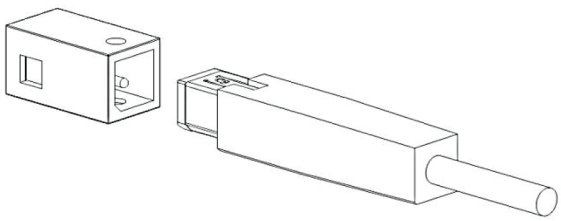


Figure 1 – Relationship between the IEC 63171 series documents and their related references

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

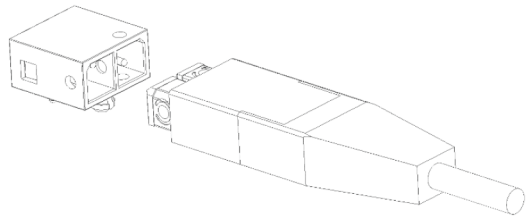
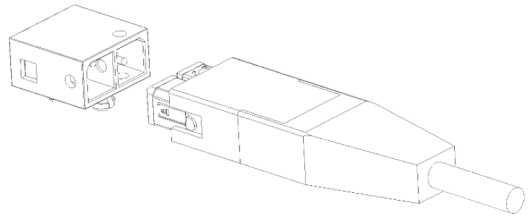
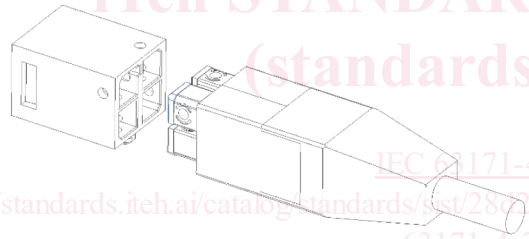
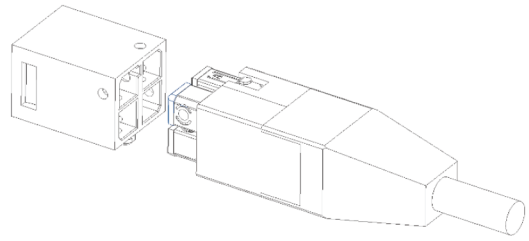
 IEC	Shielded 2-pair connector with snap-in mechanism
 IEC	Shielded 2-pair connector with locking device
 IEC	Shielded 4-pair connector with snap-in mechanism
 IEC	Shielded 4-pair connector with locking device

Figure 2 – Type 4 connector overview

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

1 Scope

This part of IEC 63171 covers shielded and unshielded free and fixed multimedia connectors (MMC) for data transmission with frequencies up to 3 000 MHz for shielded and up to 600 MHz for unshielded connectors, both with current-carrying capacity with up to 8 ways.

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*