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|------------|---|--|
| STN | Konektory pre elektrické a elektrotechnické zariadenia Tienené alebo netienené, voľné a pevné konektory pre vyvážený prenos dát s prúdovou kapacitou Všeobecné požiadavky a skúšky | STN EN IEC 63171 35 4621 |
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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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/21

Obsahuje: EN IEC 63171:2021, IEC 63171:2021

132963

EUROPEAN STANDARD

EN IEC 63171

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2021

ICS 31.220.10

English Version

**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 63171:2021)**

Connecteurs pour équipements électriques et électroniques
- Fiches et embases écrantées ou non écrantées pour transmission de données sur une seule paire symétrique avec courant admissible - Exigences générales et essais
(IEC 63171:2021)

Steckverbinder für elektrische und elektronische Geräte - Geschirmte oder ungeschirmte freie und feste Steckverbinder für symmetrische einpaarige Datenübertragung mit Stromtragfähigkeit; Allgemeine Anforderungen und Prüfungen
(IEC 63171:2021)

This European Standard was approved by CENELEC on 2021-04-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 63171:2021 (E)**European foreword**

The text of document 48B/2863/FDIS, future edition 1 of IEC 63171, prepared by SC 48B "Electrical connectors" of IEC/TC 48 "Electrical connectors and mechanical structures for electrical and electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63171:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-01-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-04-15

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Endorsement notice

The text of the International Standard IEC 63171:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60603-7 (series) NOTE Harmonized as EN 60603-7 (series)

IEC 61076-2-101 NOTE Harmonized as EN 61076-2-101

IEC 61076-2-104 NOTE Harmonized as EN 61076-2-104

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|----------------|-------------|
| IEC 60050-581 | - | International Electrotechnical Vocabulary - Part 581: Electromechanical components for electronic equipment | - | - |
| IEC 60068-1 | 2013 | Environmental testing - Part 1: General and guidance | EN 60068-1 | 2014 |
| IEC 60512-1 | - | Connectors for electrical and electronic equipment - Tests and measurements - Part 1: Generic specification | EN IEC 60512-1 | - |
| IEC 60512-1-1 | - | Connectors for electronic equipment - Tests and measurements - Part 1-1: General examination - Test 1a: Visual examination | EN 60512-1-1 | - |
| 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 | EN 60512-2-1 | - |
| IEC 60512-2-5 | - | Connectors for electronic equipment - Tests and measurements - Part 2-5: Electrical continuity and contact resistance tests - Test 2e: Contact disturbance | EN 60512-2-5 | - |
| IEC 60512-3-1 | - | Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests - Test 3a: Insulation resistance | EN 60512-3-1 | - |
| IEC 60512-4-1 | - | Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof | EN 60512-4-1 | - |

EN IEC 63171:2021 (E)

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|---------------------|-------------|
| IEC 60512-5-2 | - | Connectors for electronic equipment - Tests and measurements - Part 5-2: Current-carrying capacity tests - Test 5b: Current-temperature derating | EN 60512-5-2 | - |
| IEC 60512-6-4 | - | Connectors for electronic equipment - Tests and measurements - Part 6-4: Dynamic stress tests - Test 6d: Vibration (sinusoidal) | EN 60512-6-4 | - |
| IEC 60512-9-1 | - | Connectors for electronic equipment - Tests and measurements - Part 9-1: Endurance tests - Test 9a: Mechanical operation | EN 60512-9-1 | - |
| IEC 60512-9-2 | - | Connectors for electronic equipment - Tests and measurements - Part 9-2: Endurance tests - Test 9b: Electrical load and temperature | EN 60512-9-2 | - |
| IEC 60512-11-4 | - | Connectors for electronic equipment - Tests and measurements - Part 11-4: Climatic tests - Test 11d: Rapid change of temperature | EN 60512-11-4 | - |
| IEC 60512-11-7 | - | Connectors for electronic equipment - Tests and measurements - Part 11-7: Climatic tests - Test 11g: Flowing mixed gas corrosion test | EN 60512-11-7 | - |
| IEC 60512-11-12 | - | Connectors for electronic equipment - Tests and measurements - Part 11-12: Climatic tests - Test 11m: Damp heat, cyclic | EN 60512-11-12 | - |
| IEC 60512-13-2 | - | Connectors for electronic equipment - Tests and measurements - Part 13-2: Mechanical operation tests - Test 13b: Insertion and withdrawal forces | EN 60512-13-2 | - |
| IEC 60512-15-6 | - | Connectors for electronic equipment - Tests and measurements - Part 15-6: Connector tests (mechanical) - Test 15f: Effectiveness of connector coupling devices | EN 60512-15-6 | - |
| IEC 60512-25-9 | - | Connectors for electronic equipment - Tests and measurements - Part 25-9: Signal integrity tests - Test 25i: Alien crosstalk | EN 60512-25-9 | - |
| 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 | EN 60512-26-100 | - |
| 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 | EN IEC 60512-28-100 | - |

EN IEC 63171:2021 (E)

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|---------------------------|-------------|--|----------------|-------------|
| IEC 60664-1 | - | Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests | EN IEC 60664-1 | - |
| IEC 62153-4-9:2018/ A1 | 2020 | Metallic communication cable test methods - Part 4-9: Electromagnetic compatibility (EMC) - Coupling attenuation of screened balanced cables, triaxial method | - | - |
| IEC 62153-4-15 | - | Metallic communication cable test methods - Part 4-15: Electromagnetic compatibility (EMC) - Test method for measuring transfer impedance and screening attenuation - or coupling attenuation with triaxial cell | - | - |
| IEC/TR 63040 | 2016 | 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 - Generic cabling for customer premises - Part 1: General requirements | - | - |



IEC 63171

Edition 1.0 2021-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

Connecteurs pour équipements électriques et électroniques – Fiches et embases écrantées ou non écrantées pour transmission de données sur une seule paire symétrique avec courant admissible – Exigences générales et essais

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IEC 63171

Edition 1.0 2021-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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Connecteurs pour équipements électriques et électroniques – Fiches et embases écrantées ou non écrantées pour transmission de données sur une seule paire symétrique avec courant admissible – Exigences générales et essais

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ICS 31.220.10

ISBN 978-2-8322-9508-3

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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**

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.
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International Standard IEC 63171 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 International Standard is based on the following documents:

| | |
|---------------|------------------|
| FDIS | Report on voting |
| 48B/2863/FDIS | 48B/2866/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.

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

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- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

The IEC 63171 series is a set of International Standards covering shielded or unshielded free and fixed connectors for balanced single-pair data transmission with current carrying capacity.

This document, identified as IEC 63171, is the general requirements and tests part (general specification) of the whole series. Subsequent parts, identified as IEC 63171 followed by a dash and a progressive number starting with 1, are the product detail specifications of this series and do not duplicate information given in this document, but list only additional requirements.

Each subsequent part is identified by a type of connector covered with the same number identifying the part. Some parts can describe more than connector geometries (rectangular, circular), sharing the core element and the relevant features.

For the complete specifications regarding a connector of this series, both this general specification and the relevant detail specification are therefore required.

For the qualification of a connector of this series, both this general specification and the relevant detail specification shall be met.

Figure 1 shows the interrelation of the standards:

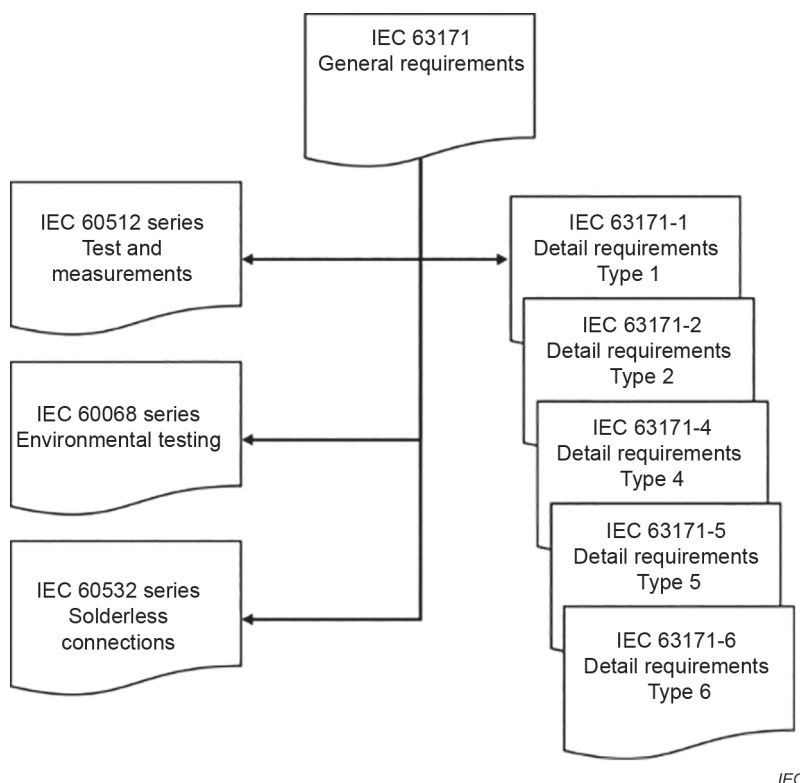


Figure 1 – Relationships between the IEC 63171 series and their related references

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

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

1 Scope

This document covers shielded and unshielded free and fixed connectors, circular or rectangular, for balanced single-pair data transmission, with current-carrying capacity.

It specifies the IEC 63171 series' common mechanical, electrical and transmission characteristics and environmental requirements, as well as required test specifications.

This document does not describe a specific mating interface. Detail specifications of mating interfaces complying with this document can be found in the family of detail specification standards IEC 63171-X (type X).

Within their own type, the shielded and unshielded connectors are interoperable for their transmission performance and can be exchanged; though the shielded version has improved alien crosstalk and coupling attenuation properties.

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 60068-1:2013, *Environmental testing – Part 1: General and guidance*

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

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

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*

IEC 60512-2-5, *Connectors for electronic equipment – Tests and measurements – Part 2-5: Electrical continuity and contact resistance tests – Test 2e: Contact disturbance*

IEC 60512-3-1, *Connectors for electronic equipment – Tests and measurements – Part 3-1: Insulation tests – Test 3a: Insulation resistance*

IEC 60512-4-1, *Connectors for electronic equipment – Tests and measurements – Part 4-1: Voltage stress tests – Test 4a: Voltage proof*

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

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

IEC 60512-9-1, *Connectors for electronic equipment – Tests and measurements – Part 9-1: Endurance tests – Test 9a: Mechanical operation*

IEC 60512-9-2, *Connectors for electronic equipment – Tests and measurements – Part 9-2: Endurance tests – Test 9b: Electrical load and temperature*

IEC 60512-11-4, *Connectors for electronic equipment – Tests and measurements – Part 11-4: Climatic tests – Test 11d: Rapid change of temperature*

IEC 60512-11-7, *Connectors for electronic equipment – Tests and measurements – Part 11-7: Climatic tests – Test 11g: Flowing mixed gas corrosion test*

IEC 60512-11-12, *Connectors for electronic equipment – Tests and measurements – Part 11-12: Climatic tests – Test 11m: Damp heat, cyclic*

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 60512-25-9, *Connectors for electronic equipment – Tests and measurements – Part 25-9: Signal integrity tests – Test 25i: Alien crosstalk*

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 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 systems – Part 1: Principles, requirements and tests*

IEC 62153-4-9:2018/AMD1:2020, *Metallic communication cable test methods – Part 4-9: Electromagnetic compatibility (EMC) – Coupling attenuation of screened balanced cables, triaxial method*

IEC 62153-4-15, *Metallic communication cable test methods – Part 4-15: Electromagnetic compatibility (EMC) – Test method for measuring transfer impedance and screening attenuation – or coupling attenuation with triaxial cell*

IEC TR 63040:2016, *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 – Generic cabling for customer premises – Part 1: General requirements*

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