

REDLINE VERSION



Connectors for electrical and electronic equipment – Tests and measurements –
Part 1: ~~General~~ Generic specification

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	3
1 Scope and object	5
2 Normative references.....	6
3 Terms and definitions	6
4 Numbering of tests and measurements specification.....	10
5 Preparation for test (description and instructions).....	12
5.1 Test apparatus.....	12
5.1.1 Test equipment, fixture and gauge.....	12
5.1.2 Calibration	12
5.2 Preparation of specimens.....	12
5.3 Wiring.....	12
5.4 Mounting of specimen	13
6 Standard conditions for testing Test (description and instructions)	13
6.1 Tests and measurements	13
6.2 Test sequences.....	14
6.3 Combined tests	14
6.4 Repetition of Dimensional measurements	14
6.5 Alternative test methods.....	14
Classification of non-conforming components	
Major non-conformance	
Minor non-conformance	
7 Requirements	14
8 Documentation	15
Bibliography	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –
TESTS AND MEASUREMENTS –****Part 1: ~~General~~ Generic specification**

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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DISCLAIMER

This Redline version is not an official Standard and is intended to provide the user with an indication of what changes have been made to the previous version. Only the IEC International Standard provided in this package is to be considered the official Standard.

This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60512-1 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

This fifth edition cancels and replaces the fourth edition, published in 2001. It constitutes a technical revision.

This edition includes the following main technical changes with respect to the previous edition:

- in Clause 3, only terms relating to the testing are defined, and IEC 61076-1 is referred to for terms of connectors.
- Clause 4 (Numbering of tests and measurement specification) is added.
- Subclause 5.1.2 (Calibration) is added.
- in Clause 6 (Test), test procedure follows IEC 60068-1.

This standard shall be used in conjunction with IEC 60512-1-101 and relevant part(s) of series IEC 60512. Part 60512-1-100 provides the list of the existing test and measuring methods published within series IEC 60512.

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

FDIS	Report on voting
48B/2667/FDIS	48B/2684/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.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

A list of all parts in the IEC 60512 series, published under the general title *Connectors for electrical and electronic equipment – Tests and measurements*, can be found on the IEC website.

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

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

IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 1: ~~General~~ Generic specification

~~1~~ **General**

~~1~~ **Scope and object**

~~This part of IEC 60512 is intended to be used as a basic specification. It contains basic test methods and procedures which, when required by the detail specification, are used for testing connectors within the scope of technical committee 48. They may also be used for similar devices when specified in a detail specification.~~

~~The object of this standard is to establish test methods and measurement procedures for use in specifications for connectors.~~

~~This standard is to be used in conjunction with the generic, sectional and detail specification which will select and prescribe the tests to be used, the required degree of severity for each of them and the permissible performance limits. The detail specification will also specify the deviations in procedure, which may be inevitable when applying a test to the type of component under consideration, and it will further specify any special procedures which may be required.~~

~~In the event of conflict between this basic specification and any individual component specification, the requirements of the component specification will apply.~~

~~NOTE 1 – RF connectors will not be dealt with by this technical committee as they will be covered by technical committee 46, together with r.f. cables.~~

~~NOTE 2 – Sockets for components such as crystals or electronic tubes will be considered in co-operation with the relevant technical committee.~~

~~NOTE 3 – Safety requirements for switches will not be developed by this technical committee as they are covered by subcommittee 23J.~~

This part of IEC 60512 is intended to be used as a basis for tests and measurements specifications for electrical connectors. It provides guidance and reference for tests and measurements within the IEC 60512 series.

It includes the description and the practice of the various phases of tests and measurements (preparation, tests and measurements, requirements, documentation), in addition to basic terms and definitions applicable to any part of the IEC 60512 series.

This document is used in conjunction with IEC 60512-1-101 to establish uniform detail tests and measurements specifications.

Detail tests and measurements specifications are applicable to electrical connectors and their components (e.g. connector inserts, connector housings, locking mechanisms, contacts and terminations) within the scope of technical committee 48. They may also be used for similar devices when specified in a detail product specification.

Detail tests and measurements specifications are used in conjunction with detail product specifications which prescribe the tests to be used, the required degree of severity for each of them and the permissible performance limits. The detail product specification also specifies

the deviations in procedures, which may be required when applying a test to the type of connector or its component under consideration, and it further specifies any special procedures which may be required.

NOTE RF and fibre optical connectors are not dealt with by subcommittee 48B, however, hybrid connectors which additionally employ RF and/or fibre optic contacts, are handled by SC 48B in cooperation with TC 46 and/or TC 86.

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 60068-1:~~1988~~ 2013, *Environmental testing – Part 1: General and guidance*

IEC 60352-1:1997, *Solderless connections – Part 1: Wrapped connections – General requirements, test methods and practical guidance*

IEC 60352-2:2006, *Solderless connections – Part 2: Crimped connections – General requirements, test methods and practical guidance*
IEC 60352-2:2006/AMD1:2013

IEC 60352-3:1993, *Solderless connections – Part 3: Solderless accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-4:1994, *Solderless connections – Part 4: Solderless non-accessible insulation displacement connections – General requirements, test methods and practical guidance*
IEC 60352-4:1994/AMD1:2000

IEC 60352-5:2012, *Solderless connections – Part 5: Press-in connections – General requirements, test methods and practical guidance*

IEC 60352-6:1997, *Solderless connections – Part 6: Insulation piercing connections – General requirements, test methods and practical guidance*

IEC 60352-7:2002, *Solderless connections – Part 7: Spring clamp connections – General requirements, test methods and practical guidance*

IEC 60352-8:2011, *Solderless connections – Part 8: Compression mount connections – General requirements, test methods and practical guidance*

IEC 60512-1-100, *Connectors for electronic equipment – Tests and measurements – Part 1-100: General – Applicable publications*

IEC 60512-1-101, *Connectors for electronic equipment – Tests and measurements – Part 1-101: Blank detail specification*

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

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Connecteurs pour équipements électriques et électroniques –
Essais et mesures –
Partie 1: Spécification générique**



CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	6
4 Numbering of tests and measurements specification.....	9
5 Preparation for test (description and instructions).....	10
5.1 Test apparatus.....	10
5.1.1 Test equipment, fixture and gauge.....	10
5.1.2 Calibration	10
5.2 Preparation of specimens.....	11
5.3 Wiring.....	11
5.4 Mounting of specimen	11
6 Test (description and instructions).....	11
6.1 Tests and measurements	11
6.2 Test sequences.....	12
6.3 Combined tests	12
6.4 Dimensional measurements.....	12
6.5 Alternative test methods.....	12
7 Requirements	12
8 Documentation	12
Bibliography	14

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TESTS AND MEASUREMENTS –****Part 1: Generic specification**

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CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 1: Generic specification

1 Scope

This part of IEC 60512 is intended to be used as a basis for tests and measurements specifications for electrical connectors. It provides guidance and reference for tests and measurements within the IEC 60512 series.

It includes the description and the practice of the various phases of tests and measurements (preparation, tests and measurements, requirements, documentation), in addition to basic terms and definitions applicable to any part of the IEC 60512 series.

This document is used in conjunction with IEC 60512-1-101 to establish uniform detail tests and measurements specifications.

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IEC 60352-5:2012, *Solderless connections – Part 5: Press-in connections – General requirements, test methods and practical guidance*

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IEC 60352-7:2002, *Solderless connections – Part 7: Spring clamp connections – General requirements, test methods and practical guidance*

IEC 60352-8:2011, *Solderless connections – Part 8: Compression mount connections – General requirements, test methods and practical guidance*

IEC 60512-1-100, *Connectors for electronic equipment – Tests and measurements – Part 1-100: General – Applicable publications*

IEC 60512-1-101, *Connectors for electronic equipment – Tests and measurements – Part 1-101: Blank detail specification*

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

SOMMAIRE

AVANT-PROPOS.....	17
1 Domaine d'application.....	19
2 Références normatives	19
3 Termes et définitions	20
4 Numérotation des essais et spécification de mesure.....	23
5 Préparation de l'essai (description et instructions).....	24
5.1 Appareillage d'essai	24
5.1.1 Equipement d'essai, installation et gabarit	24
5.1.2 Etalonnage	25
5.2 Préparation des spécimens	25
5.3 Câblage	25
5.4 Fixation du spécimen	25
6 Essai (description et instructions).....	25
6.1 Essais et mesures.....	25
6.2 Séquences d'essais	26
6.3 Essais combinés	26
6.4 Mesures dimensionnelles	26
6.5 Méthodes d'essai en variante	27
7 Exigences	27
8 Documentation	27
Bibliographie	28

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

**CONNECTEURS POUR ÉQUIPEMENTS
ÉLECTRIQUES ET ÉLECTRONIQUES –
ESSAIS ET MESURES –****Partie 1: Spécification générique****AVANT-PROPOS**

- 1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
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- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets et de ne pas avoir signalé leur existence.

La Norme internationale IEC 60512-1 a été établie par le sous-comité 48B: Connecteurs électriques, du comité d'études 48 de l'IEC: Connecteurs électriques et structures mécaniques pour les équipements électriques et électroniques.

Cette cinquième édition annule et remplace la quatrième édition, parue en 2001. Elle constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- dans l'Article 3, définition uniquement des termes relatifs aux essais, et référence à l'IEC 61076-1 pour les termes relatifs aux connecteurs;

- ajout de l'Article 4 (Numérotation des essais et spécification de mesure);
- ajout du paragraphe 5.1.2 (Etalonnage);
- dans l'Article 6 (Essais), mode opératoire calqué sur l'IEC 60068-1.

La présente norme doit être utilisée conjointement avec l'IEC 60512-1-101 et la ou les parties pertinentes de la série IEC 60512. La Partie 60512-1-100 donne la liste des méthodes d'essai et de mesure existantes, publiées dans la série IEC 60512.

Le texte de cette Norme internationale est issu des documents suivants:

FDIS	Rapport de vote
48B/2667/FDIS	48B/2684/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Les futures normes de cette série porteront dorénavant le nouveau titre général cité ci-dessus. Le titre des normes existant déjà dans cette série sera mis à jour lors de la prochaine édition.

Une liste de toutes les parties de la série IEC 60512, publiées sous le titre général *Connecteurs pour équipements électriques et électroniques – Essais et mesures*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous «<http://webstore.iec.ch>» dans les données relatives au document recherché. A cette date, le document sera

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CONNECTEURS POUR ÉQUIPEMENTS ÉLECTRIQUES ET ÉLECTRONIQUES – ESSAIS ET MESURES –

Partie 1: Spécification générique

1 Domaine d'application

La présente partie de l'IEC 60512 est destinée à être utilisée comme une base pour les spécifications des essais et mesures relatifs aux connecteurs électriques. Elle donne des recommandations et des références pour les essais et mesures au sein de la série IEC 60512.

Elle inclut la description et l'organisation des différentes phases des essais et mesures (préparation, essais et mesures, exigences, documentation), ainsi que les termes et définitions de base applicables à une quelconque partie de la série IEC 60512.

Le présent document est utilisé conjointement avec l'IEC 60512-1-101 pour déterminer des spécifications particulières uniformes des essais et mesures.

Les spécifications particulières des essais et mesures s'appliquent aux connecteurs électriques et à leurs composants, relevant du domaine d'application du comité d'études 48 (par exemple isolants de connecteurs, boîtiers de connecteurs, mécanismes de verrouillage, contacts et sorties). Elles peuvent également être utilisées pour des dispositifs similaires, lorsque cela est spécifié dans la spécification particulière d'un produit.

Les spécifications particulières des essais et mesures sont utilisées conjointement avec les spécifications particulières de produit qui prescrivent les essais à utiliser, le degré de sévérité exigé pour chacun d'eux et les limites de performance admises. La spécification particulière du produit spécifie aussi les écarts dans les modes opératoires, qui peuvent être exigés lors de la réalisation d'un essai sur le type de connecteur à l'étude, ou sur l'un de ses composants. Elle spécifie en outre un quelconque mode opératoire spécifique qui peut être exigé.

NOTE Les connecteurs RF et à fibres optiques ne relèvent pas du domaine d'application du sous-comité 48B. Cependant, les connecteurs hybrides qui comprennent entre autres des contacts RF et/ou à fibres optiques relèvent du domaine d'application du SC 48B, en coopération avec le TC 46 et/ou le TC 86.

2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60068-1:2013, *Essais d'environnement – Partie 1: Généralités et lignes directrices*

IEC 60352-1:1997, *Connexions sans soudure – Partie 1: Connexions enroulées – Règles générales, méthodes d'essai et guide pratique*

IEC 60352-2:2006, *Connexions sans soudure – Partie 2: Connexions serties – Exigences générales, méthodes d'essai et guide pratique*
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