



**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 60603-1:2002

<https://standards.iteh.ai/catalog/standards/sist/85bae63c-46d9-4796-8e7c-2a09eb4e565a/sist-en-60603-1-2002>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60603-1**

February 1998

ICS 31.220.10

Descriptors: Electronic components, electric connections, printed-circuit cards, characteristics, general conditions, detail specifications, quality assurance, technical writing, instructions

English version

**Connectors for frequencies below 3 MHz for use with printed boards**  
**Part 1: Generic specification - General requirements and**  
**guide for the preparation of detail specifications,**  
**with assessed quality**  
**(IEC 60603-1:1991 + A1:1992)**

Connecteurs pour fréquences inférieures  
à 3 MHz pour utilisation avec cartes  
imprimées

Partie 1: Spécification générique  
Prescriptions générales et guide  
de rédaction des spécifications  
particulières, avec assurance  
de la qualité  
(CEI 60603-1:1991 + A1:1992)

Steckverbinder für gedruckte  
Schaltungen für Frequenzen  
unter 3 MHz

Teil 1: Fachgrundspezifikation  
Allgemeine Anforderungen und  
Leitfaden für die Erstellung von  
Bauartspezifikationen mit  
Qualitätsbewertung  
(IEC 60603-1:1991 + A1:1992)

This European Standard was approved by CENELEC on 1998-01-01. 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 Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

# CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

### Foreword

The text of the International Standard IEC 60603-1:1991 and its amendment 1:1992, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the formal vote and was approved by CENELEC as EN 60603-1 on 1998-01-01 without any modification.

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 1998-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 1998-12-01

Annexes designated "normative" are part of the body of the standard.  
Annexes designated "informative" are given for information only.  
In this standard, annexes A and ZA are normative and annex B is informative.  
Annex ZA has been added by CENELEC.

### Endorsement notice

The text of the International Standard IEC 60603-1:1991 and its amendment 1:1992, was approved by CENELEC as a European Standard without any modification.

SIST EN 60603-1:2002

<https://standards.iteh.ai/catalog/standards/sist/85bae63c-46d9-4796-8e7c-2a09eb4e565a/sist-en-60603-1-2002>



**Annex ZA (normative)****Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60027	series	Letter symbols to be used in electrical technology	HD 245	series
IEC 60050(581)	1978	International Electrotechnical Vocabulary (IEV) Chapter 581: Electromechanical components for electronic equipment	-	-
IEC 60068-1	1988	Environmental testing Part 1: General and guidance	EN 60068-1 <sup>1)</sup>	1994
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-
IEC 60512-1	1984 <sup>2)</sup>	Electromechanical components for electronic equipment - Basic testing procedures and measuring methods Part 1: General	-	-
IEC 60512-2	1985	Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests	-	-
IEC 60512-3	1976	Part 3: Current-carrying capacity tests	-	-
IEC 60512-4	1976	Part 4: Dynamic stress tests	-	-
IEC 60512-5	1977	Part 5: Impact tests (free components), static load tests (fixed components), endurance tests and overload tests	-	-
IEC 60512-6	1984	Part 6: Climatic tests and soldering tests	-	-
IEC 60512-7	1988	Part 7: Mechanical operating tests and sealing tests	-	-

1) EN 60068-1 includes the corrigendum October 1988 and A1:1992 to IEC 60068-1.

2) IEC 60512-1:1994 is harmonized as EN 60512-1:1994.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60512-8	1984	Part 8: Connector tests (mechanical) and mechanical tests on contacts and terminations	-	-
IEC 60617	series	Graphical symbols for diagrams	EN 60617	series
IEC QC 001002	1986	Rules of procedure of the IEC Quality Assessment System for Electronic Components (IECQ)	-	-
ISO 129	1985	Technical drawings - Dimensioning - General principles, definitions, methods of execution and special indications	-	-
ISO 286-1	1988	ISO system of limits and fits Part 1: Bases of tolerances, deviations and fits	EN 20286-1	1993
ISO 286-2	1988	Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts	EN 20286-2	1993
ISO 1000	1981	SI units and recommendations for the use of their multiples and of certain other units	-	-

# NORME INTERNATIONALE INTERNATIONAL STANDARD

**CEI  
IEC  
603-1**

QC 010000  
Deuxième édition  
Second edition  
1991-06

## Connecteurs pour fréquences inférieures à 3 MHz pour utilisation avec cartes imprimées

### Partie 1:

**Spécification générique –  
Prescriptions générales et guide de rédaction  
des spécifications particulières,  
avec assurance de la qualité**

<https://standards.iteh.ai/catalog/standards/sist/85bae63c-46d9-4796-8e7c-2a09eb4e565a/sist-en-60603-1-2002>

## Connectors for frequencies below 3 MHz for use with printed boards

### Part 1:

**Generic specification –  
General requirements and guide for  
the preparation of detail specifications,  
with assessed quality**

© CEI 1991 Droits de reproduction réservés — Copyright – all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher

Bureau central de la Commission Electrotechnique Internationale 3, rue de Varembe Genève Suisse



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

U

Pour prix, voir catalogue en vigueur  
For price, see current catalogue

## CONTENTS

	Page
FOREWORD .....	7
<b>SECTION 1 – SCOPE AND OBJECT</b>	
Clause	
1 Scope and object .....	9
<b>SECTION 2 – GENERAL</b>	
2 Related documents .....	9
2.1 Terminology .....	11
2.1.1 Type .....	11
2.1.2 Style .....	11
2.1.3 Variant .....	11
2.1.4 Examples .....	13
2.2 Classification into climatic categories .....	13
2.3 Creepage and clearance distances .....	13
2.4 Currents .....	13
2.5 Marking .....	13
2.5.1 On the connector .....	13
2.5.2 On the package .....	15
2.6 IEC type designation .....	15
<b>SECTION 3 – QUALITY ASSESSMENT PROCEDURES</b>	
3 Quality assessment procedures .....	17
3.1 Primary stage of manufacture .....	17
3.2 Structurally similar styles .....	17
3.3 System of levels .....	17
3.3.1 Performance level .....	17
3.3.2 Assessment level .....	19
3.3.3 Inspection level (IL) .....	19
3.3.4 Acceptable quality level (AQL) .....	19
3.3.5 Combination of performance and assessment levels .....	19
3.4 Grouping of tests .....	21
3.4.1 Test groups for qualification approval testing .....	21
3.4.2 Inspection groups for quality conformance inspection .....	21
3.4.3 Delayed delivery .....	21
3.4.4 Release for delivery before completion of "Group B" tests .....	21
3.4.5 Delivery of tested connectors .....	23



Clause	Page
3.5 Approval of manufacturers, independent test laboratories and distributors .....	23
3.6 Qualification approval procedures .....	23
3.6.1 General .....	23
3.6.2 Granting of qualification approval .....	23
3.6.3 Extent of qualification approval .....	23
3.6.4 Maintenance of qualification approval .....	25
3.6.5 Suspension or withdrawal of qualification approval .....	25
3.6.6 Significant changes .....	25
3.6.7 Qualification approval testing .....	25
3.6.8 Qualification approval report .....	25
3.7 Quality conformance inspection .....	29
3.7.1 Formation of inspection lots .....	29
3.7.2 Small lots and/or expensive connectors .....	29
3.7.3 Quality conformance inspection groups .....	29
3.7.4 Lot-by-lot tests .....	31
3.7.5 Periodic tests .....	31
3.7.6 Certified record of released lots .....	33
3.7.7 Quality conformance testing .....	33
3.7.8 In-process testing .....	35
<p style="text-align: center;">SIST EN 60603-1:2002  <a href="https://standards.iteh.ai/catalog/standards/sist/656ac05c-46d5-4756-8c7c-2a09eb4e565a/sist-en-60603-1-2002">https://standards.iteh.ai/catalog/standards/sist/656ac05c-46d5-4756-8c7c-2a09eb4e565a/sist-en-60603-1-2002</a>            (standards.iteh.ai)</p>	
<b>SECTION 4 – GENERAL REQUIREMENTS, TESTS AND TEST SCHEDULES</b>	
4 Testing .....	37
4.1 General aspects .....	37
4.2 Pre-conditioning .....	39
4.3 Mounting of specimens .....	39
4.4 Test schedules .....	39
4.4.1 Basic (minimum) test schedule .....	41
4.4.2 Full test schedule .....	41
<b>SECTION 5 – PREPARATION OF DETAIL SPECIFICATIONS</b>	
5 Title of detail specifications .....	49
5.1 Drawing information .....	49
5.1.1 Projection method and dimensioning system .....	49
5.1.2 Drawings and dimensions .....	49
5.1.3 System of lettering .....	51
5.2 Contents of detail specification .....	51
Appendix A – Common lettering system to be used in drawings .....	57

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS FOR FREQUENCIES BELOW 3 MHz  
FOR USE WITH PRINTED BOARDSPart 1: Generic specification – General requirements and  
guide for the preparation of detail specifications,  
with assessed quality

## FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

This part of International Standard IEC 603 has been prepared by Sub-Committee 48B: Connectors, of IEC Technical Committee No. 48: Electromechanical components for electronic equipment.

It forms the second edition of IEC 603-1 and supersedes the first edition issued in 1981.

The text of this part is based on the first edition and the following documents:

Six Months' Rule	Reports on Voting
48B(CO)160 48B(CO)187	48B(CO)168 48B(CO)195

Full information on the voting for the approval of this part can be found in the Voting Reports indicated in the above table.

The QC number that appears on the front cover of this publication is the specification number in the IEC Quality Assessment System for Electronic Components (IECQ).

## CONNECTORS FOR FREQUENCIES BELOW 3 MHz FOR USE WITH PRINTED BOARDS

### Part 1: Generic specification – General requirements and guide for the preparation of detail specifications, with assessed quality

#### SECTION 1 – SCOPE AND OBJECT

##### 1 Scope and object

This part of IEC 603 is applicable to printed board connectors designed for use in equipment for telecommunication and electronic data processing and in electronic equipment or devices employing similar techniques. This generic specification shall be used in conjunction with the relevant detail specification(s).

Connectors essentially for applications at frequencies exceeding 3 MHz are not covered by this generic specification.

The object of this part of IEC 603 is to establish uniform specifications, type test requirements and quality assessment procedures for connectors for use with printed boards and to establish rules for the preparation of detail specifications for connectors of assessed quality.

SIST EN 60603-1:2002

In the event of conflict between this generic specification and the detail specification, the requirements of the detail specification shall prevail.

#### SECTION 2 – GENERAL

##### 2 Related documents

This generic specification shall be used in conjunction with the following publications. Units, graphic symbols and letter symbols shall be used whenever possible in accordance with the requirements of the publications listed below.

IEC 27, *Letter symbols to be used in electrical technology*.

IEC 50(581): 1978, *IEV - Chapter 581: Electromechanical components for electronic equipment*.

IEC 68-1: 1988, *Environmental testing - Part 1: General and guidance*.

IEC 410: 1973, *Sampling plans and procedures for inspection by attributes*.

IEC 512-1: 1984, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods. Part 1: General*.

IEC 512-2: 1985, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods - Part 2: General examination, electrical continuity*.

IEC 512-3: 1976, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods - Part 3: Current-carrying capacity tests.*

IEC 512-4: 1976, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods - Part 4: Dynamic stress tests.*

IEC 512-5: 1977, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods - Part 5: Impact tests (free components), static load tests (fixed components), endurance tests and overload tests.*

IEC 512-6: 1984, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods - Part 6: Climatic tests and soldering tests.*

IEC 512-7: 1988, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods - Part 7: Mechanical operating tests and sealing tests.*

IEC 512-8: 1984, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods - Part 8: Connector tests (mechanical) and mechanical tests on contacts and terminations.*

IEC 617, *Graphical symbols for diagrams.*

QC 001002: 1986, *Rules of procedure of the IEC quality assessment system for electronic components (IECQ).*

ISO 129: 1985, *Technical drawings - Dimensioning - General principles, definitions, methods of execution and special indications.*

ISO 286-1: 1988, *ISO system of limits and fits - Part 1: Bases of tolerances, deviations and fits.*

ISO 286-2: 1988, *ISO system of limits and fits - Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts.*

ISO 1000: 1981, *SI units and recommendations for use of their multiples and of certain other units.*

## 2.1 Terminology

The terminology used in and applicable to this part of IEC 603 is included in IEC 50(581).

For the purpose of this standard, the following additional terms and definitions shall apply:

**2.1.1 type:** Connectors within a particular sub-family, such as one-part connectors (edge-socket connectors), two-part connectors.

**2.1.2 style:** A particular connector within a type.

**2.1.3 variant:** Variations within a type and style, or within a group of related connectors.