

Guidance on terms for connectors and mechanical structures in electronic equipment

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National foreword

This Published Document reproduces verbatim IEC TR 62225:2001.

The UK participation in its preparation was entrusted to Technical Committee EPL/48, Electromechanical components and mechanical structures for electronic equipment, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

GUIDANCE ON TERMS FOR CONNECTORS AND MECHANICAL STRUCTURES IN ELECTRONIC EQUIPMENT

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
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IEC 62225, which is a technical report, has been prepared by technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
48/433/DTR	48/436/RVC

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

This document, which is purely informative, is not to be regarded as an International Standard.

The committee has decided that the contents of this publication will remain unchanged until 2003. At this date, the publication will be

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

GUIDANCE ON TERMS FOR CONNECTORS AND MECHANICAL STRUCTURES IN ELECTRONIC EQUIPMENT

1 Scope

The content of this list of terms is based on the terminology which is primarily used in the IEC publications under the responsibility of IEC TC 48. This technical report is not meant to be considered as a vocabulary nor as a glossary of terms in the sense of ISO/DIS 1087-1 and is not formatted in the same way.

This technical report offers project leaders the listed terms as a preferred selection for use in new publications. By applying these preferred terms, the clause containing terms and definitions that form part of most standards can be shortened significantly.

The listed terms are collected from standards, already published, and projects which have reached the CDV stage.

The terms that have been published in IEC 60050-581 are listed "for information". Modifications are allowed if necessary, in order to better suit the purpose of new publications. The listing also includes terms published in other chapter(s) of the IEV, when the term(s) have been used in TC 48 documents.

NOTE The terms as published by the IEV are not always in conformance with ISO/IEC Directives Part 2 – 2000, C.1.5.3. In this document, words like 'a' or 'the' have been deleted wherever possible, without indicating that the IEV was "modified".

At the end of their maintenance cycle, it is recommended to revise published documents where applicable using these preferred terms.

For easy use, the terms are given in alphabetical order, with the title, description and additional information about the source, status and recommendations:

- Description: where applicable, a note is added to clarify.
- Source: the publication or project in which the term has been used.
- Status: the following status types (in alphabetical order) have been used:
 - Deprecated** an IEV term, which has been replaced by a better term.
 - Draft** the term forms part of a document, which is currently in preparation.
 - Modified** the listed term deviates from a published term.
 - Obsolete** the published term is no longer in use.
 - Published** the term has been published in an IEC document.
 - Superseded** the term has been superseded by another published term.
 - Unique** fully new term that has not been used in any document.
- Apply: recommendation to the author of a new or a revised standard.

2 Reference documents

IEC 60050-151, *International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices*

IEC 60050-581, *International Electrotechnical Vocabulary – Chapter 581: Electromechanical components for electronic equipment*

IEC 60050-826, *International Electrotechnical Vocabulary – Chapter 826: Electrical installations of buildings*

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

IEC 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements*

IEC 60352-2, *Solderless connections – Part 2: Solderless crimped connections – General requirements, test methods and practical guidance*

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

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

IEC 60352-7, *Solderless connections – Part 7: Spring clamp connections – General requirements, test methods and practical guidance*¹

IEC 60512-3, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 3: Current-carrying capacity tests*

IEC 60512-4, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 4: Dynamic stress tests*

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

IEC 60917-1, *Modular order for the development of mechanical structures for electronic equipment practices – Part 1: Generic standard*

IEC 60917-2, *Modular order for the development of mechanical structures for electronic equipment practices – Part 2: Sectional specification – Interface co-ordination dimensions for the 25 mm equipment practice*

IEC 60917-2-2, *Modular order for the development of mechanical structures for electronic equipment practices – Part 2: Sectional specification – Interface co-ordination dimensions for the 25 mm equipment practice – Section 2: Detail specification – Dimensions for subracks, chassis, backplanes, front panels and plug-in units*

IEC 60999-1, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)*

IEC 61076-1, *Connectors with assessed quality, for use in d.c., low frequency analogue and in digital high speed data applications – Part 1: Generic specification*

¹ To be published.

IEC 61076-4-101, *Connectors for electronic equipment – Part 4-101: Printed board connectors with assessed quality – Detail specification for two-part connector modules having a basic grid of 2,0 mm for printed boards and backplanes in accordance with IEC 60917*

IEC 61076-4-104, *Connectors for use in d.c., low frequency analogue and digital high speed data applications – Part 4-104: Printed board connectors with assessed quality – Detail specification for two-part modular connectors, basic grid of 2,0 mm, with terminations on a multiple grid of 0,5 mm*

IEC 61076-4-108, *Connectors for electronic equipment – Part 4-108: Printed board connectors with assessed quality – Detail specification for cable-to-board connectors, with a modular pitch of 25 mm and integrated shielding function, applicable for transverse packing density of 15 mm, having a basic grid of 2,5 mm, in accordance with IEC 60917¹*

IEC 61984, *Connectors – Safety requirements and tests*

3 Terms and definitions

Numerical

180° polarisation

housing parts of the fixed and free connector have a 180° polarisation to prevent incorrect insertion

Source: IEC 61076-4-108

Status: draft

Apply: no, use 'polarization'

NOTE The term 'polarization' includes 180° polarization.

A

above-chassis mounted

component with its mounting flange in front of the mounting surface when looking at the mating face or front side of the component

Source: IEC 581-04-02

Status: deprecated

Apply: no, use 'front mounted'

accessible insulation displacement connection

insulation displacement (ID) connection in which it is possible to access test points for carrying out mechanical tests and electrical measurements without deactivation of any design feature intended to establish and/or maintain the ID connection

Source: IEC 60352-3 and IEC 60352-4 (modified)

Status: published

Apply: yes

accessory

any associated item which does not form part of a basic component

Source: IEC 581-05-01

Status: published

Apply: yes

adaptor

intermediate device to provide for attachments such as special accessories, special mounting means or special interconnecting means

Source: IEC 581-05-02

Status: published

Apply: yes

¹ To be published.

alternative insert position

orientation achieved by rotating insert in circular connectors

Source: IEC 60917-1 and IEC 60917-2 (modified)

Status: published

Apply: yes

aperture dimension

special co-ordination dimension for a useable space between features (structural parts)

NOTE An actual inside dimension of an aperture can only increase.

Source: IEC 60917-1 and IEC 60917-2 (modified)

Status: published

Apply: yes

apparent diameter of a stranded conductor

diameter of the circumscribing circle of the bundle of strands

Source: IEC 60917-1 and IEC 60917-2 (modified)

Status: published

Apply: yes

B

back plane

interconnection plane in the base of a mechanical structure

Source: IEC 60917-1 and IEC 60917-2 (modified)

Status: published

Apply: no, use '**backplane**'

backplane

mounting plane of connectors and printed board for the electrical interlink

Source: IEC 60917-1/A1

Status: published

Apply: yes

back-mounted

a component with its mounting flange behind the mounting surface when looking at the mating face or front side of the component

Source: IEC 60917-1 and IEC 60917-2 (modified)

Status: published

Apply: yes

barrier seal

seal provided through the connector between housing and insert and contacts to inhibit the ingress of contaminants

Source: IEC 60917-1 and IEC 60917-2 (modified)

Status: published

Apply: yes

base pitch (p)

smallest distance between adjacent grid lines

NOTE Used in the equipment practices.

Source: IEC 60917-1 (modified)

Status: published

Apply: yes

basic insulation

insulation applied to live parts to provide protection against electric shock

Source: IEC 60664-1 (modified)

Status: published

Apply: yes

basic test schedule

schedule of minimum type tests

Source: IEC 61076-1

Status: published

Apply: yes

bayonet coupling

quick coupling device for mating connectors utilizing projections riding in ramps and providing jacking and locking features with limited rotation

Source: IEC 581-07-16

Status: published

Apply: yes

beam

specially shaped metallic part of an insulation displacement termination on each side of the connection slot or the strain relief slot

Source: IEC 581-02-27

Status: published

Apply: yes

below-chassis mounted

component with its mounting flange behind the mounting surface when looking at the mating face or front side of the component

Source: IEC 581-04-01

Status: deprecated

Apply: no, use 'back-mounted'

bifurcated contact

flat contact with a lengthwise slot, the two arms of which apply contact force in the same direction

Source: IEC 581-02-02

Status: published

Apply: yes

blade contact

solid contact with a rectangular cross-section, usually with a chamfered mating edge

Source: IEC 581-02-03

Status: published

Apply: yes

board-mounted connector

connector suitable for being permanently attached to a printed board

Source: IEC 581-06-03

Status: obsolete

Apply: no, use 'fixed board connector'

boot

accessory usually of a flexible material, designed to be placed around the terminations of a component as a protective housing

Source: IEC 581-05-03

Status: published

Apply: yes

bound connection

electrical connection between a wire and a sharp-cornered post in which the wire is laid parallel to the length of the post and adjacent to its wider face

NOTE The wire is secured to the post by tightly wrapping several turns of a separated solid wire around the post and the wire to be secured; each turn of the wrapping wire contacts the bound connection producing deformation in it and locks on at least two corners of the post.

Source: IEC 581-03-02 (modified)

Status: published

Apply: yes

bound twin-post connection

hybrid type of connection formed when two rectangular sharp-cornered posts are positioned with their wider faces in contact and secured by tightly wrapping several turns of solid wire around them

Source: IEC 581-03-08

Status: published

Apply: yes

break-away connector

connector designed to separate when a specified force is applied to the cable, without damage to the cable or the connector

Source: IEC 581-06-24

Status: published

Apply: yes

breaking capacity

value of current which the connector with breaking capacity can make and brake under specified conditions

Source: IEC 61984

Status: published

Apply: yes

butting connector

connector in which connection is achieved between non-penetrating contacts and maintained by axial pressure

Source: IEC 581-06-04

Status: published

Apply: yes

C

cabinet

free-standing and self-supporting enclosure for housing electrical and/or electronic equipment

NOTE It is usually fitted with doors and/or side panels, which may or may not be removable.

Source: IEC 60917-1 (modified)

Status: published

Apply: yes

cabinet panel

design part of an enclosure as protection against incident touch and environmental influences

Source: IEC 60917/A1

Status: published

Apply: yes

cable adaptor

part of a connector or an accessory consisting of a rigid housing for attachment to the connector body

NOTE It may incorporate provision for a cable clamp or seal for terminating screens and provide shielding to electrical interference; it may be straight or angled.

Source: IEC 581-09-01 (modified)

Status: published

Apply: no, use 'cable outlet'

cable clamp

accessory or part of a component which grips the cable or wire to provide strain relief and absorb mechanical stress which would otherwise be transmitted to the termination

Source: IEC 581-09-03 (modified)

Status: published

Apply: yes

cable outlet

part of a connector or an accessory consisting of a rigid housing for attachment to the connector body

NOTE It may incorporate provision for a cable clamp or seal for terminating screens and provide shielding to electrical interference; it may be straight or angled.

Source: IEC 581-09-01 (modified)

Status: published

Apply: yes

cable screen clamp

cable clamp to terminate the cable screen

Source: IEC 581-09-04

Status: published

Apply: yes

cable seal

device designed to seal a jacketed cable to a component

Source: IEC 581-08-15

Status: published

Apply: yes

cable shielding clamp

cable clamp to terminate the cable screen

Source: IEC 581-09-04

Status: published

Apply: no, use 'cable screen clamp'

cable support sleeve

flexible accessory or a part of a component placed around the cable to minimize flexing of the cable at the point of entry into the component

Source: IEC 581-07-34

Status: published

Apply: yes

case

table, bench or wall-mounting enclosure in which electrical and/or electronic equipment can be housed

Source: IEC 60917-1

Status: published

Apply: yes

centre shield

metal screen located centrally in a socket to provide electrical screening between opposite contacts

Source: IEC 581-07-31

Status: published

Apply: yes

chassis

mechanical structure designed specifically to support associated electrical and electronic components

Source: IEC 60917-1

Status: published

Apply: yes

chess pattern

contact arrangement where the loaded and the unloaded positions alternate in rows and columns, like fields on a chess-board.

Source: IEC 61076-4-101

Status: published

Apply: yes

circular connector

connector which is basically cylindrical and has a mating face with a basically circular periphery

Source: IEC 581-06-05

Status: published

Apply: yes

clamping unit

part(s) of the terminal necessary for the mechanical clamping and the electrical connection of the conductor(s), including the parts which are necessary to ensure the correct contact pressure

Source: IEC 61984 and IEC 60999-1

Status: published

Apply: yes

clearance

shortest distance in air between two conductive parts

Source: IEC 60664-1

Status: published

Apply: yes

climatic category

short form indication of the basic requirements which an electromechanical component should meet

Source: IEC 60068-1

Status: published

Apply: yes

clip

resilient device which deflects on mating to produce a connection

Source: IEC 581-02-24

Status: published

Apply: yes

clip connection

connection made by a clip

Source: IEC 581-03-37

Status: published

Apply: yes

clip post

termination to accept a clip connection

Source: IEC 581-02-25

Status: published

Apply: yes

closed crimp barrel

crimp barrel with a closed shape before crimping

Source: IEC 581-03-58

Status: published

Apply: yes

coding devices

accessories allowing the user to make specific pairs of connectors by providing them with matching coding devices

Source: IEC 61076-4-101 (modified)

Status: published

Apply: yes

coding key

device which engages with a keyway which, when mounted, prevents the improper mating (engagement) of the connector halves at a distance less than the specified minimum contact range

Source: IEC 61076-4-104

Status: published

Apply: yes

compatible connectors

two connectors are compatible, when they are intermountable, and/or intermateable or interchangeable

Source: IEC 581-09-05 (modified)

Status: published

Apply: yes, see also IEC 61076-1/A2

compliant press-in termination

press-in termination having a compliant press-in zone

Source: IEC 581-03-41

Status: published

Apply: yes

concentric contact

assembly of two contacts arranged coaxially enabling the view of engaging face connection of coaxial, shielded or twisted pair cables

NOTE This definition, rather than that of IEC 581-02-04, should be used.

Source: IEC 61076-6

Status: draft

Apply: yes

concentric contact

set of coaxial contacts providing independent circuits through a single mechanical assembly

NOTE The definition given in IEC 61076-6 should be used rather than the one given in IEC 581-02-04.

Source: IEC 581-02-04

Status: published

Apply: no, use 'concentric contact'

conductor barrel

section of a terminal end or splice which accommodates the conductor

Source: IEC 581-03-35

Status: published

Apply: yes

conductor pull-out force

force required to destroy a termination by separating a conductor from its terminal end by exerting an axial pull

Source: IEC 581-03-16

Status: published

Apply: yes

conductor tensile force

force required to destroy a termination by separating a conductor from its terminal end by exerting an axial pull

Source: IEC 581-03-16

Status: published

Apply: no, use 'conductor pull-out force'

conductor tensile strength

in preparation

conduit adaptor

accessory to secure a connector to a conduit

Source: IEC 581-09-02

Status: published

Apply: yes

connection

physical interface between conductors and/or contacts to provide an electrical path

Source: IEC 581-03-01

Status: published

Apply: yes

connection slot

specially shaped opening of an insulation displacement termination suitable to displace the insulation of a wire and to ensure a gas-tight connection between the termination and the conductor(s) of the wire

Source: IEC 60352-3, IEC 60352-4, IEC 581-02-28 (modified)

Apply: yes

Status: published

connector

component which terminates conductors for the purpose of providing connection and disconnection to a suitable mating component

Source: IEC 581-06-01

Status: published

Apply: yes