



BSI Standards Publication

Connectors for electronic equipment —

Part 7-2: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 100 MHz

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

raising standards worldwide™

Full document details: BS EN 60603-7-2:2009

National foreword

This British Standard is the UK implementation of EN 60603-7-2:2009. It is identical to IEC 60603-7-2:2007.

The UK participation in its preparation was entrusted to Technical Committee EPL/48, Electromechanical components and mechanical structures for electronic equipment.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© BSI 2010

ISBN 978 0 580 53763 9

ICS 31.220.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2010

Amendments issued since publication

Amd. No.	Date	Text affected
----------	------	---------------

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60603-7-2

November 2009

ICS 31.220.10

English version

**Connectors for electronic equipment -
Part 7-2: Detail specification for 8-way,
unshielded, free and fixed connectors,
for data transmissions with frequencies up to 100 MHz
(IEC 60603-7-2:2007)**

Connecteurs pour équipements
électroniques -
Partie 7-2: Spécification particulière
pour les fiches et les embases
non blindées à 8 voies
pour la transmission de données
à des fréquences jusqu'à 100 MHz
(CEI 60603-7-2:2007)

Steckverbinder für elektronische
Einrichtungen -
Teil 7-2: Bauartspezifikation
für ungeschirmte freie und feste
Steckverbinder, 8polig,
für Datenübertragungen bis 100 MHz
(IEC 60603-7-2:2007)

This European Standard was approved by CENELEC on 2009-09-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

© 2009 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Ref. No. EN 60603-7-2:2009 E

 **Documents**
Document Sharing Hub

Foreword

The text of document 48B/1740/FDIS, future edition 1 of IEC 60603-7-2, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60603-7-2 on 2009-09-01.

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) 2010-06-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-09-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60603-7-2:2007 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 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>
-	-	Communication cables - Specifications for test methods - Part 1-14: Electrical test methods - Coupling attenuation or screening attenuation of connecting hardware	EN 50289-1-14	- ¹⁾
IEC 60050-581	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60068-1	- ¹⁾	Environmental testing - Part 1: General and guidance	EN 60068-1	1994 ²⁾
IEC 60068-2-38	- ¹⁾	Environmental testing - Part 2-38: Tests - Test Z/AD: Composite temperature/humidity cyclic test	EN 60068-2-38	2009
IEC 60169-16	- ¹⁾	Radio-frequency connectors - Part 16: R.F. coaxial connectors with inner diameter of outer conductor 7 mm (0,276 in) with screw coupling - Characteristic impedance 50 ohms (75 ohms) (type N)	-	-
IEC 60352	Series	Solderless connections	EN 60352	Series
IEC 60512	Series	Connectors for electronic equipment - Tests and measurements	EN 60512	Series
IEC 60512-1-100	- ¹⁾	Connectors for electronic equipment - Tests and measurements - Part 1-100: General - Applicable publications	EN 60512-1-100	2006 ²⁾
IEC 60603-1	- ¹⁾	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	EN 60603-1	1998 ²⁾
IEC 60603-7	Series	Connectors for electronic equipment - Part 7: Detail specifications for 8-way free and fixed connectors	EN 60603-7	Series
IEC 60664-1	- ¹⁾	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007 ²⁾

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61076-1	- ¹⁾	Connectors for electronic equipment - Product requirements - Part 1: Generic specification	EN 61076-1	2006 ²⁾
IEC 61156	Series	Multicore and symmetrical pair/quad cables for digital communications	-	-
ISO/IEC 11801	2002	Information technology - Generic cabling for customer premises	-	-
ISO 1302	- ¹⁾	Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation	EN ISO 1302	2002 ²⁾
ITU-T Recommendation K.20	- ¹⁾	Resistibility of telecommunication equipment installed in a telecommunications centre to overvoltages and overcurrents	-	-
ITU-T Recommendation K.44	- ¹⁾	Resistibility tests for telecommunication equipment exposed to overvoltages and overcurrents - Basic Recommendation	-	-
ITU-T Recommendation G.117	- ¹⁾	Transmission aspects of unbalance about earth	-	-
ITU-T Recommendation O.9	- ¹⁾	Measuring arrangements to assess the degree of unbalance about earth	-	-

CONTENTS

FOREWORD.....	9
INTRODUCTION.....	13
1 General	15
1.1 Scope.....	15
1.2 Normative references	15
2 IEC type designation	19
2.1 Terms and definitions	21
3 Common features and isometric view	23
3.1 Isometric view	23
3.2 Mating information.....	23
4 Cable terminations and internal connections – fixed and free connectors	39
4.1 General.....	39
4.2 Termination types.....	39
5 Gauges	41
5.1 Fixed connectors	41
5.2 Free connectors	47
6 Characteristics	51
6.1 General.....	51
6.2 Pin and pair grouping assignment.	51
6.3 Classification into climatic category.....	51
6.4 Electrical characteristics.....	53
6.5 Transmission characteristics	57
6.6 Mechanical.....	61
7 Tests and test schedule.....	61
7.1 General.....	61
7.2 Arrangement for contact resistance test:	63
7.3 Arrangement for vibration test (test phase CP1)	65
7.4 Test procedures and measuring methods	65
7.5 Preconditioning	65
7.6 Wiring and mounting of specimens	67
7.7 Test schedules	67
Annex A (normative) Gauging continuity procedure.....	85
Annex B (normative) Locking-device mechanical operation.....	93
Annex C (normative) Test plug requirements	95
Annex D (normative) General requirements for the measurement set-up.....	123
Annex E (normative) Insertion loss	135
Annex F (normative) Return loss.....	139
Annex G (normative) Near end cross talk (NEXT)	143
Annex H (normative) Far end cross talk	147
Annex I (normative) Termination of balun.....	151
Annex J (normative) Gauge requirements	153

Figure 1 – Isometric view	23
Figure 2 – Contact interface dimensions with terminated free connector	25
Figure 3 – Fixed connector details	31
Figure 4 – Free connector view	35
Figure 5 – “Go” gauge	41
Figure 6 – No-go gauges	43
Figure 7 – “No-go” gauges	47
Figure 8 – “Go” gauge	49
Figure 9 – Fixed connector pin and pair grouping assignment (front view of connector)	51
Figure 10 – Connector de-rating curve	55
Figure 11 – Arrangement for contact resistance test	63
Figure 12 – Arrangement for vibration test	65
Figure A.1 – Gauge	89
Figure A.2 – Gauge insertion	91
Figure C.1 – De-embedding reference plug	97
Figure C.2 – De-embedding reference jack	101
Figure C.3 – TH13KIT test head interface with baluns attached	113
Figure C.4 – Alternative to item 3.1 in Table C.5	117
Figure C.5 – Back-to-back through calibration	117
Figure C.6 – Mated test plug/coaxial termination reference test head test configuration	121
Figure D.1 – 180° hybrid used as a balun	125
Figure D.2 – Calibration of reference loads	127
Figure D.3 – Resistor load	129
Figure D.4 – Screened pyramid	131
Figure D.5 – Definition of reference planes	133
Figure E.1 – Calibration	135
Figure E.2 – Measuring Set-up	137
Figure G.1 – NEXT measurement for differential and common mode terminations	143
Figure H.1 – FEXT measurement differential and common mode terminations	147
Figure I.1 – Balanced attenuator for balun centre tap grounded	151
Figure I.2 – Balanced attenuator for balun centre tap open	151
Table 1 – Dimensions for Figure 2	27
Table 2 – Dimensions for Figure 3	33
Table 3 – Dimensions for Figure 4	37
Table 4 – Dimensions for Figures 5 and 6	45
Table 5 – Dimensions for Figure 7	47
Table 6 – Dimensions for Figure 8	49

Table 7 – Climatic categories – selected values	51
Table 8 – Creepage and clearance distances	53
Table 9 – Test group P	69
Table 10 – Test group AP	71
Table 11 – Test group BP	75
Table 12 – Test group CP	77
Table 13 – Test group DP	79
Table 14 – Test group EP	81
Table 15 – Test group FP	83
Table 16 – Test group GP	83
Table A.1 – Dimensions for Figure A.1	87
Table C.1 – De-embedded real and imaginary reference jack vectors	105
Table C.2 – Test plug NEXT loss limits	107
Table C.3 – Test plug NEXT loss ranges	109
Table C.4 – Coaxial termination reference head component list	111
Table C.5 – Coaxial termination reference head, additional parts	115
Table C.6 – Return loss requirements for return loss reference plug	121
Table D.1 – Test balun performance characteristics	127
Table F.1 – Uncertainty band of return loss measurement at frequencies below 100 MHz	141
Table F.2 – Uncertainty band of return loss measurement at frequencies above 100 MHz	141

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS FOR ELECTRONIC EQUIPMENT –**Part 7-2: Detail specification for 8-way, unshielded,
free and fixed connectors, for data transmissions
with frequencies up to 100 MHz**

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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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.

International Standard IEC 60603-7-2 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
48B/1740/FDIS	48B/1748/RVD

Full information on the voting for the approval of this standard 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 2.

A list of all parts of the IEC 60603 series, under the general title *Connectors for electronic equipment*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

INTRODUCTION

Applications have emerged which require the use of the interface described in IEC 60603-7:1996 with certain performance specifications at higher frequencies. The parameters for this performance include insertion loss, near end crosstalk (NEXT), far end crosstalk (FEXT), and return loss. Based on application requirements, the specifications for these parameters always apply to a mated connection of a free (plug) and fixed (outlet) connector. Details for testing of connectors and test plugs are given in Annex C.

CONNECTORS FOR ELECTRONIC EQUIPMENT –

Part 7-2: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 100 MHz

1 General

1.1 Scope

This part of IEC 60603-7 covers 8-way, unshielded, free and fixed connectors, and specifies mechanical and environmental requirements, and electrical transmission requirements for frequencies up to 100 MHz. These connectors are typically used as category 5 connectors in class D cabling systems specified in ISO/IEC 11801:2002.

These connectors are intermateable, interoperable, and backward compatible with other IEC 60603-7 series connectors. While the definition of interoperable is being discussed within IEC, “interoperable” in this standard means the following: The fixed and the free connector are capable of interconnecting with any IEC 60603-7 series connector, and that when it is interconnected, it fully meets all requirements of the lower frequency IEC 60603-7 series standard.

NOTE Transmission performance categories: in this part of IEC 60603-7, the term “category”, when used in reference to transmission performance, refers to those categories defined by ISO/IEC 11801:2002.

1.2 Normative references

The following referenced documents are indispensable for the application 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) – Chapter 581: Electro-mechanical components for electronic equipment*

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

IEC 60068-2-38, *Environmental testing – Part 2: Tests. Test Z/AD: Composite temperature/humidity cyclic test*

IEC 60169-16, *Radio frequency connectors – Part 16: R.F. coaxial connectors with inner diameter of outer conductor 7 mm (0,276 in) with screw coupling – Characteristic impedance 50 ohms (75 ohms) (Type N)*

IEC 60352 (all parts), *Solderless connections*

IEC 60512 (all parts), *Connectors for electronic equipment – Tests and measurements*

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

IEC 60603-1, *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 60603-7 (all parts), *Connectors for electronic equipment*

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

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

IEC 61156 (all parts), *Multi-core and symmetrical pair/quad cables for digital communications*

ISO/IEC 11801:2002, *Information technology – Generic cabling for customer premises*

ISO 1302, *Geometrical Product Specifications (GPS) – Indication of surface texture in technical product documentation*

ITU-T K.20, *Resistibility of telecommunication equipment installed in a telecommunications centre to overvoltages and overcurrents*

ITU-T K.44, *Resistibility tests for telecommunication equipment exposed to overvoltages and overcurrents – Basic Recommendation*

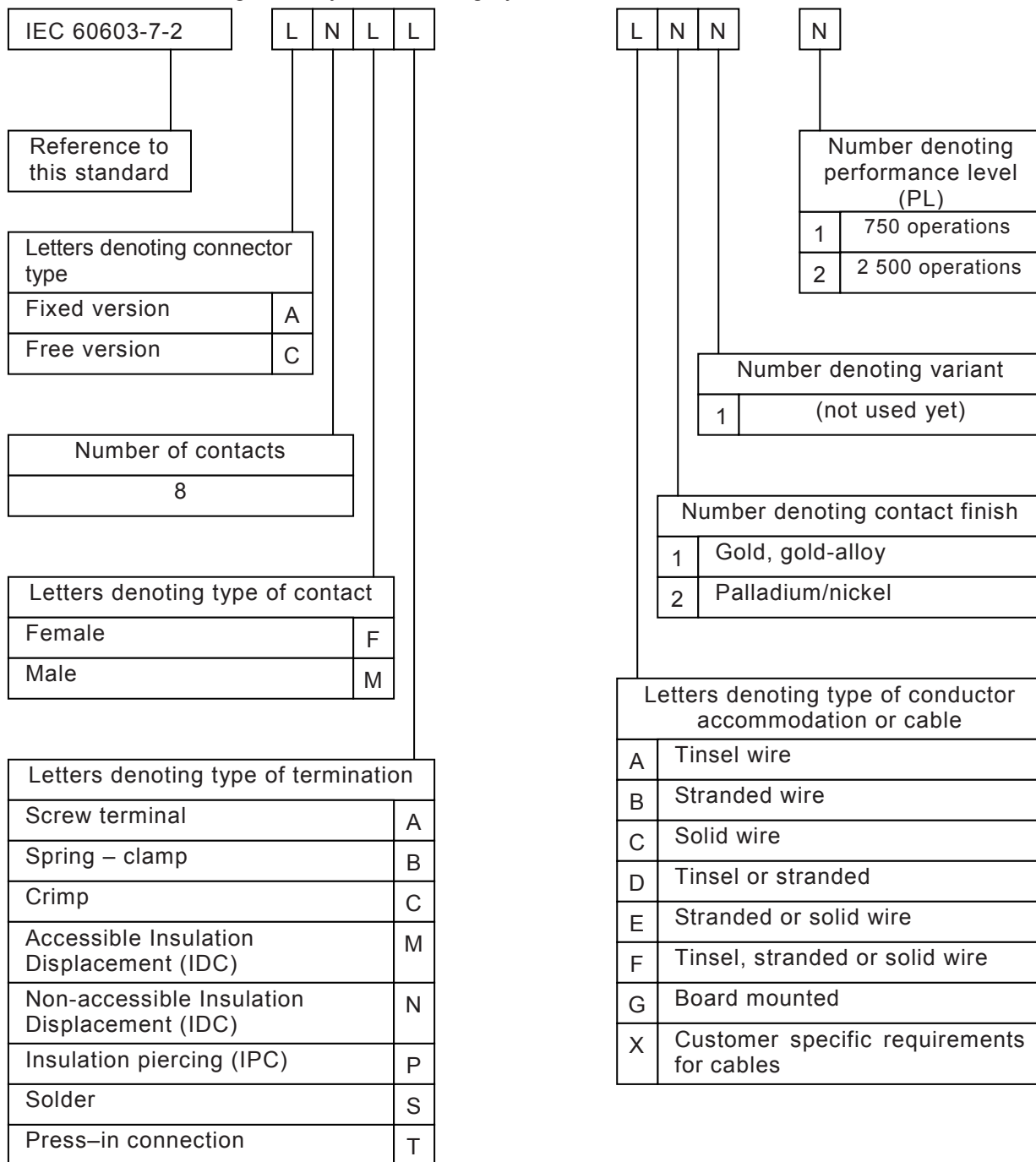
ITU-T G.117, *Transmission aspects of unbalance about earth*

ITU-T O.9, *Measuring arrangements to assess the degree of unbalance about earth*

EN 50289-1-14, *Communication cables – Specifications for test methods – Part 1-14: Electrical test methods – Coupling attenuation or screening attenuation of connecting hardware*

2 IEC type designation

Connectors, connector bodies and connectors with pre-inserted contacts according to this standard shall be designated by the following system:



“L” stands for letter

“N” stands for number

EXAMPLE IEC 60603-7-2 A8FM-E11-1: Fixed connector, panel mounted, having 8 female contacts with insulation displacement contacts for solid and stranded wire, gold plated, meeting performance level 1.

2.1 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60050(581), IEC 61076-1, IEC 60512-1, as well as the following, apply.

2.1.1

transmission performance categories

in this part of IEC 60603-7 the term “Category”, when used in reference to transmission performance, refers to those categories defined in ISO/IEC 11801:2002

2.1.2

interchangeability levels

the connectors described in this part of IEC 60603-7 are intermateable, interoperable and backward compatible with all IEC 60603-7 series connectors

2.1.3

intermateability

intermateability is ensured by applying the “GO” and “NO-GO” gauge requirements herein and adherence to dimensional requirements within

2.1.4

backward compatibility

the backward compatibility requirement ensures that a plug or jack which is in compliance with this part of IEC 60603-7, mated with a jack or plug in compliance with any lower frequency IEC 60603-7 series connector, shall fully comply with the requirements of the lower frequency IEC 60603-7 series connector

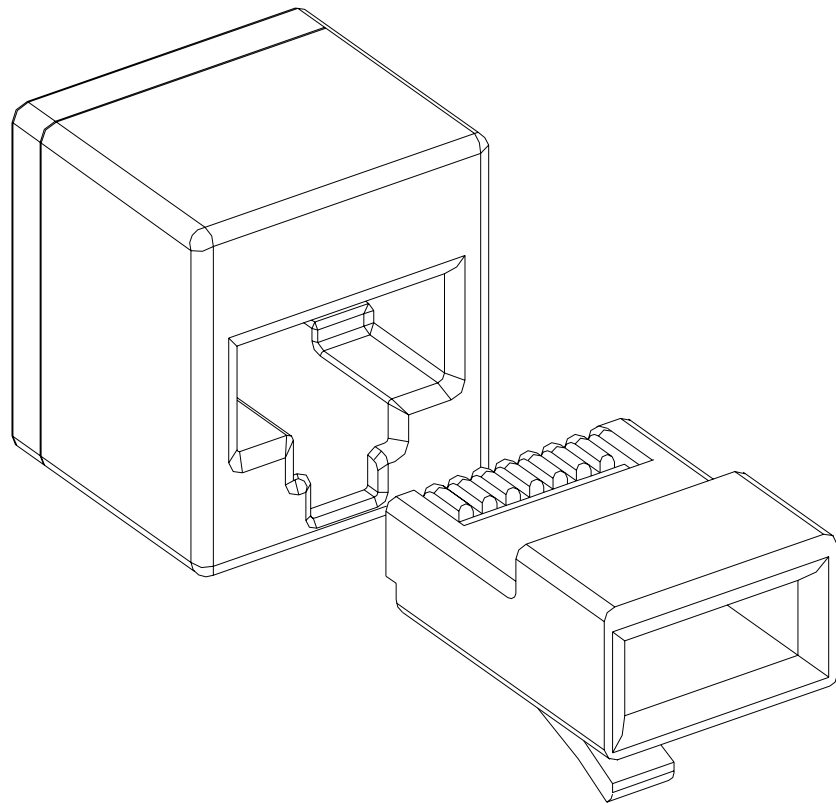
2.1.5

interoperability

interoperability of different IEC 60603-7-2 connectors is assured by compliance with all transmission requirements when the fixed connector is mated with a full range of “test” free connectors, or “test plugs”, as described herein

3 Common features and isometric view

3.1 Isometric view



IEC 238/07

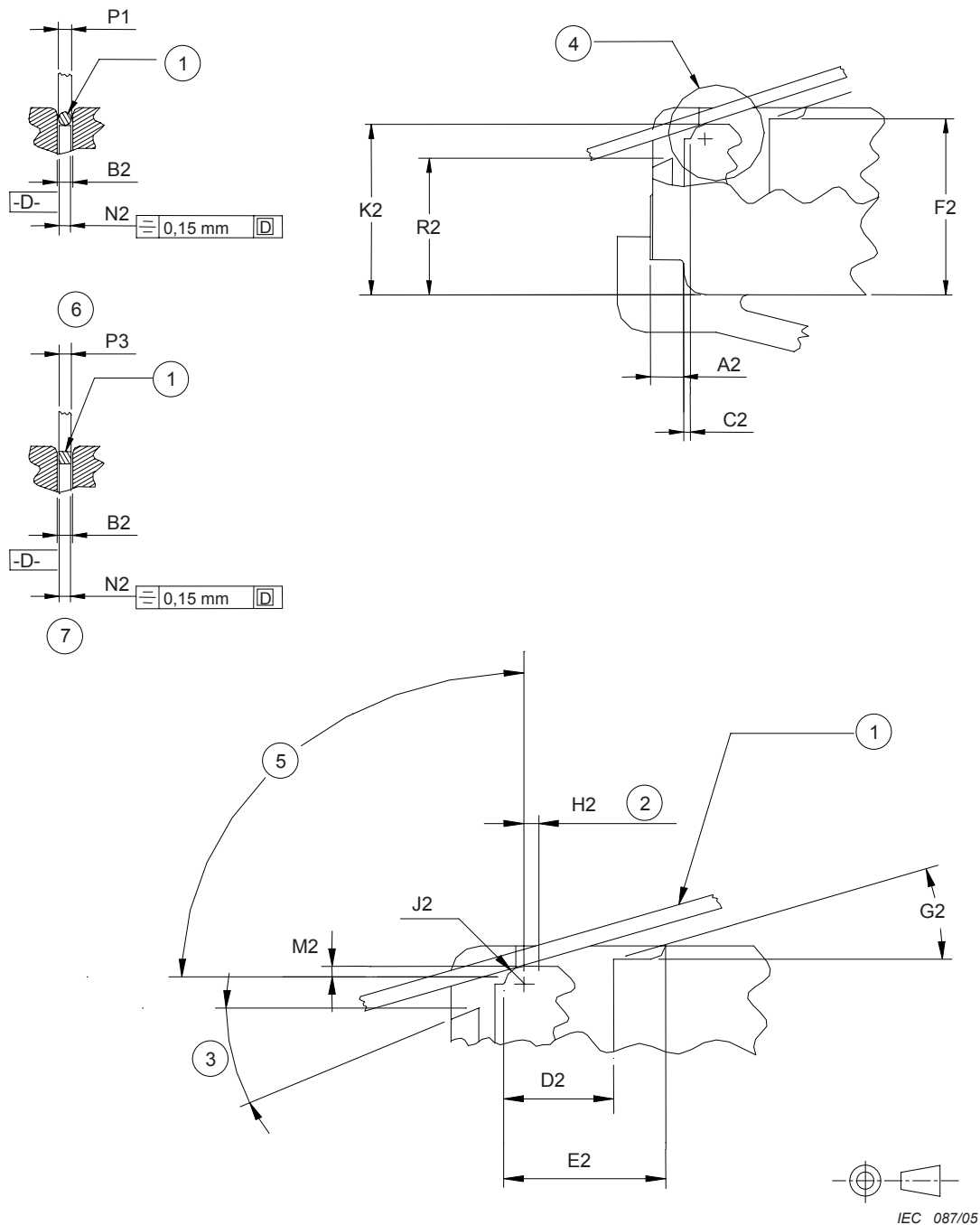
Figure 1 – Isometric view

3.2 Mating information

3.2.1 General

Dimensions are given in millimetres. Drawings are shown in third angle projection. The shape of connectors may deviate from those shapes given in the following figures as long as the specified dimensions are not influenced.

3.2.2 Contacts – mating conditions



Key

- 1 Female contact of fixed connector.
- 2 Burrs shall not project above top of the male contact in this area, since it may be a contact area.
- 3 Optional angle.
- 4 Minimum preferred contact configuration.
- 5 Preferred contact configuration.
- 6 Optional contact configuration.

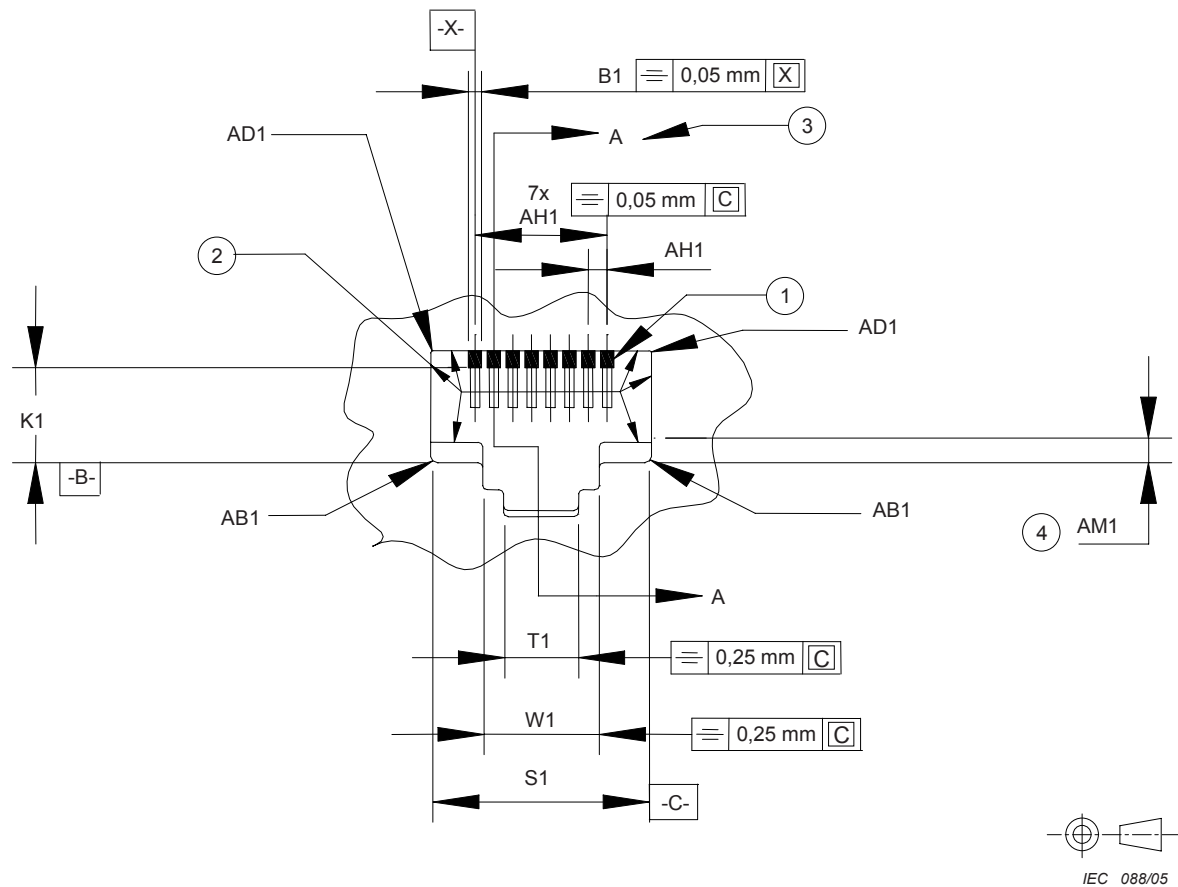
Figure 2 – Contact interface dimensions with terminated free connector

Table 1 – Dimensions for Figure 2

Letter	Maximum mm	Minimum mm
A2	1,45	0,89
B2	0,61	0,51
C2	0,46	0,03
D2		2,79
E2		4,11
F2	6,22	
H2		0,38
J2	0,64	0,38
K2	6,15	5,89
M2		0,30
N2		0,28
P1	0,50	0,45
P3	0,50	0,36
R2	4,83	

Letter	Maximum
G2	10°
Care shall be taken that the jack contacts avoid interference with the plastic of the free connector.	

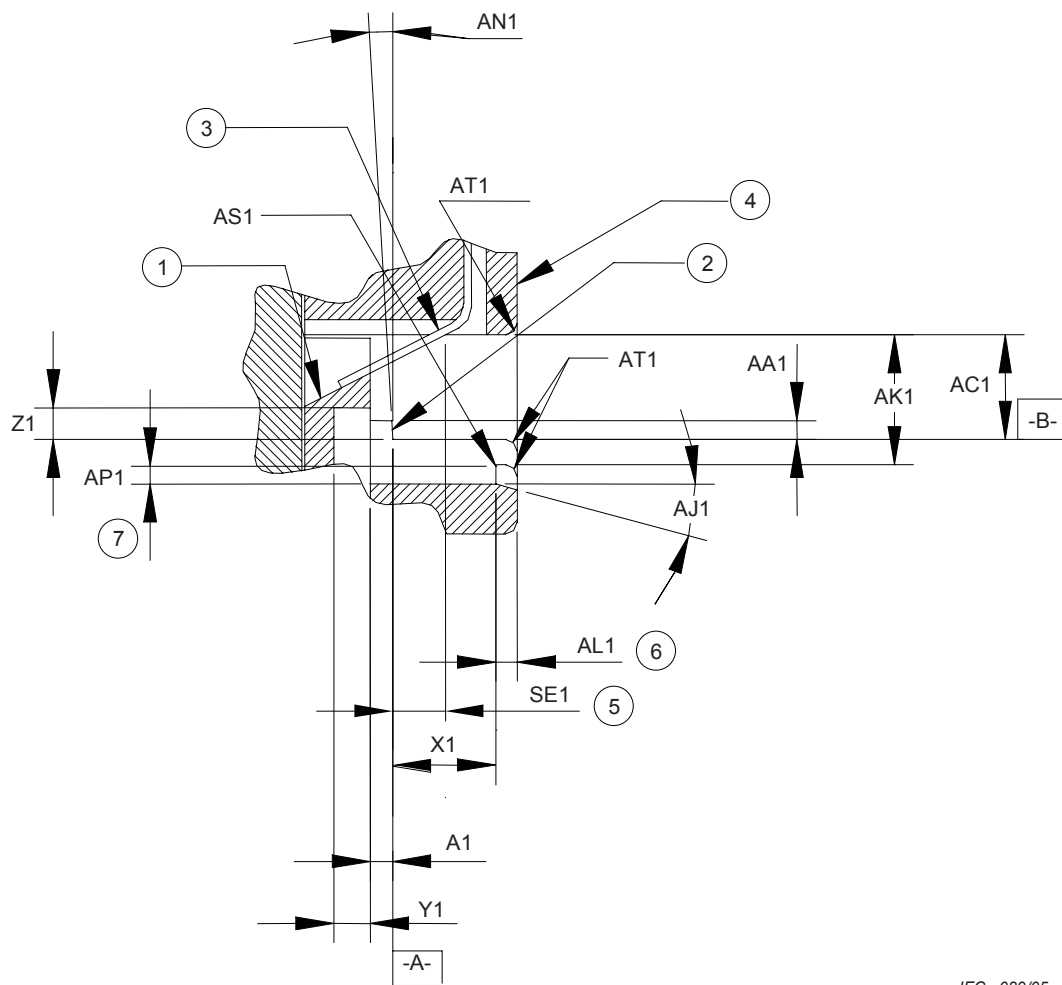
3.2.3 Fixed connector



Key

- 1 Contact zone: female contacts shall be completely within their individual contact zone in the area indicated.
- 2 0,15 mm maximum taper on both sides.
- 3 Relief outside the area defined by AM1 permitted on all four corners.
- 4 Section A – A: see Figure 3b.

Figure 3a – View of contact zone



IEC 089/05

Key

- 1 Optional contact rest.
- 2 Preferred free connector stop.
- 3 Contacts shown at rest.
Contacts shall always be contained inside guide slots and shall move freely within their individual slots.
- 4 Surface need not be planar or coincident with the surface below the locking device as long as insertion, latching and unlatching of free connectors is not inhibited.
- 5 Maximum forward extension of contacts below surface AC1, to avoid contact with shields of free connectors.
Applies in the mated state.
- 6 Projections beyond AL1 dimension shall not prevent finger access to free connector locking device.
- 7 Flat surface.

NOTE All internal corners in the connector cavity shall be 0,38 mm radius maximum unless otherwise specified.

Figure 3b – Section A – A, view of contact zone

Figure 3 – Fixed connector details

Table 2 – Dimensions for Figure 3

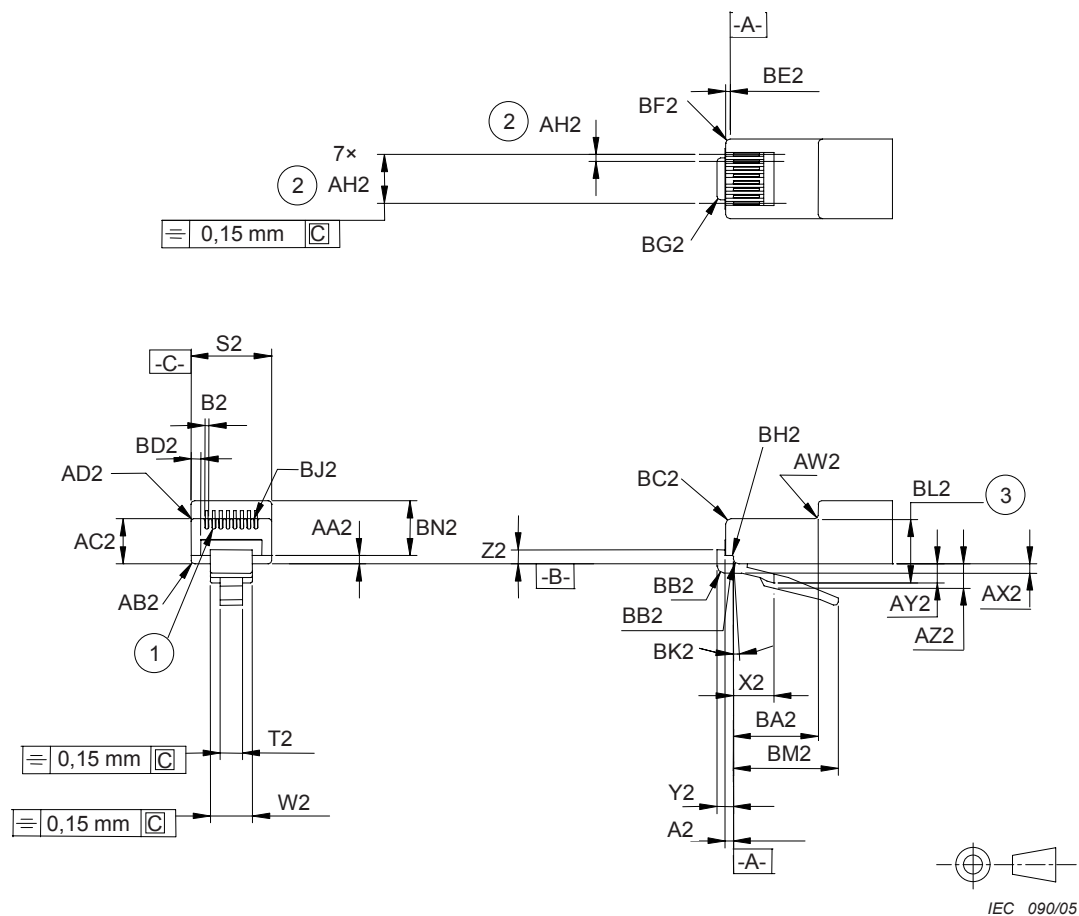
Letter	Maximum mm	Minimum mm	Nominal (ref) mm
A1		1,47	
B1	0,71		
K1	5,84		
S1	12,04	11,84	11,94
T1	4,19	3,94	
W1	6,38	6,22	
X1	6,86	6,68	
Y1		2,40	
Z1		2,08	
AA1	1,24		
AB1	0,38		
AC1	6,96	6,76	6,86
AD1	0,13		
AH1			1,02 TP ¹⁾
AK1	8,66	8,38	
AL1		1,40	
AM1		1,52	
AP1		1,27	
AS1	0,08		
AT1			0,76
SA1		5,31	
SB1		2,16	
SD1	4,90		
SE1	5,80		
SF1		²⁾	

¹⁾ TP indicates true position.

²⁾ Care shall be taken that all screen contacts of the fixed connector always make contact with the screen contacts of the free connector in worst case condition to ensure reliable performance.

Letter	Maximum	Suggested minimum
AJ1		15°
AN1	3°30'	

3.2.4 Free connector (contacts not shown)



Key

- 1 Full radius permitted on all slots.
- 2 These dimensions apply to the locations of the contact slots.
- 3 Applies with locking device depressed.
- 4 SG2 refers to foremost extension of the screen at the bottom of the plug.

Figure 4 – Free connector view

Table 3 – Dimensions for Figure 4

Letter	Maximum mm	Minimum mm	Nominal (ref) mm
A2 a)	a)	a)	1,17
B2 a)	a)	a)	0,56
S2	11,79	11,58	11,68
T2	3,38	3,12	
W2	6,17	6,02	
X2	6,02	5,77	
Y2	2,34		
Z2	2,06		
AA2		1,24	
AB2	0,64	0,38	
AC2	6,71	6,50	6,60
AD2	0,64	0,13	
AH2			1,02
AW2	0,51		
AX2	1,32		
AY2	2,87	2,67	
AZ2	0,64		
BA2		12,32	
BB2	1,14	0,38	
BC2	1,02	0,51	
BD2		0,51	
BE2	1,09		
BF2	0,64		
BG2	0,64	0,38	
BH2			0,13
BL2	8,36		
BM2	15,88	14,61	
BN2	8,00		
a) See Table 1.			

Letter	Maximum	Nominal (ref)
BJ2		Full radius
BK2	3°30'	

4 Cable terminations and internal connections – fixed and free connectors

4.1 General

A connector may include multiple terminations between the cable termination and the separable contact interface. These may include press-in connections of jack springs into PCBs, for example. All terminations shall meet the relevant termination requirements.

If a type of solderless termination which is not covered by any IEC specification is used, the supplier shall assure its reliability by performing similar tests, and demonstrating a similar level of performance, to those in the IEC 60352 series.

Free connectors are intended to be terminated to cable to provide connector and cable assemblies. The connector type designation provides basic terminations concerning the type of conductor (stranded, solid) to which the conductor may be applied, and the type of connection used (solder, insulation displacement, etc.). Specific details concerning wire gauge size, type and thickness of conductor insulation, size and shape of cordage or cable jacket, etc. are not intended to be part of this detail specification. Minor variations in a free connector's interior details to accommodate differing wire gauge sizes, outer jackets, etc. do not require the generation of new free-connector specifications.

4.2 Termination types

4.2.1 Solder terminations

Solder terminations are not covered by the IEC 60352 series and are allowed.

4.2.2 Insulation displacement terminations

Insulation displacement terminations shall conform to IEC 60352-3 or IEC 60352-4.

4.2.3 Crimp terminations

Crimp terminations shall conform to IEC 60352-2.

4.2.4 Insulation piercing terminations

Insulation piercing terminations shall conform to IEC 60352-6.

4.2.5 Press in connections (compliant pin (under consideration))

Press in connections shall conform to IEC 60352-5.

4.2.6 Spring clamp terminations

Spring Clamp terminations shall conform to IEC 60352-7.

4.2.7 Other types

In the case, where a type of solderless termination is used which is not covered by any IEC specification and the supplier cannot demonstrate similar level of performance or there is no applicable IEC 60352 standard to be used as reference, the supplier shall show conformance with the full test schedule in 7.7 for all possible variations of terminations, for example each cable construction type (screen construction types, wire construction (solid, flexible)) the connector is intended to be used for.

5 Gauges

5.1 Fixed connectors

Gauges shall be made according to the following requirements:

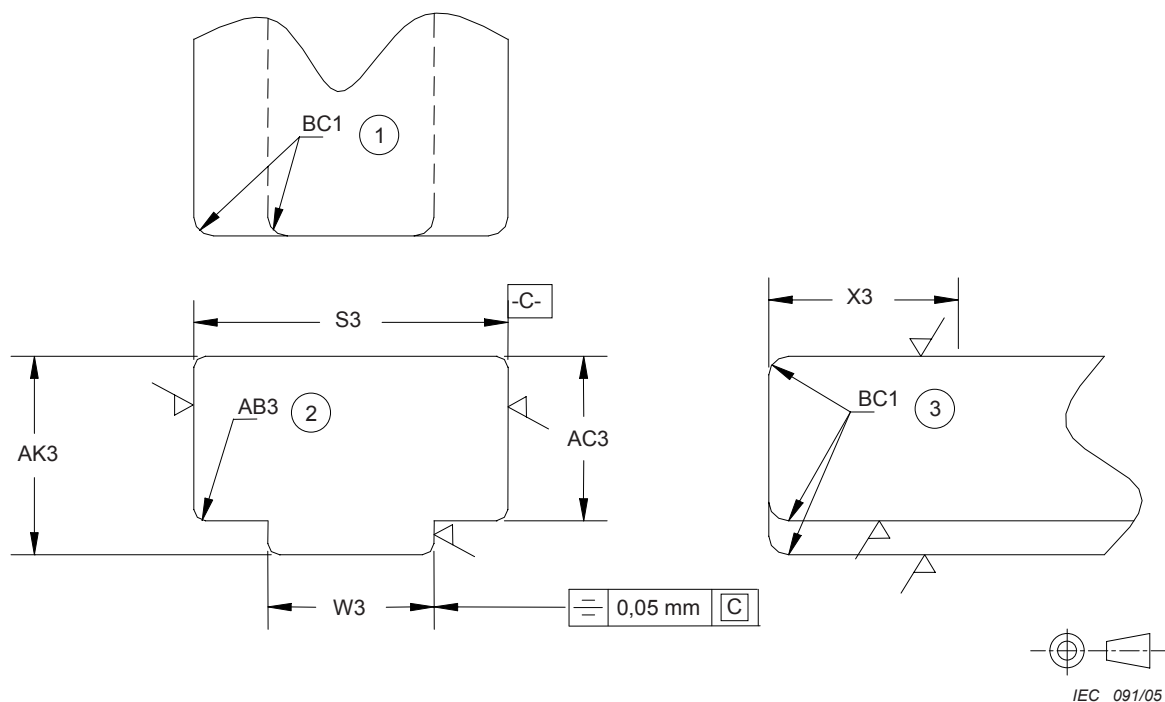
Material: tool steel, hardened.

✓ = Surface roughness, according to ISO 1302.

Ra = 0,25 µm maximum

A 0,01 mm wear tolerance shall be applied.

Clearance shall be provided for signal contacts and screen contacts (not shown on drawings).



Key

- 1 Four places.
- 2 Six places.
- 3 All around.

Figure 5 – "Go" gauge