

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

**Part 7: Detail specification for
connectors, 8-way, including fixed and
free connectors with common mating
features, with assessed quality**

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- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
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National foreword

This Part of BS EN 60603 has been prepared by Subcommittee EPL/48/2, and is the English language version of EN 60603-7:1997, *Connectors for frequencies below 3 MHz for use with printed boards — Part 7: Detail specification for connectors, 8-way, including fixed and free connectors with common mating features, with assessed quality*, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 603-7:1996, published by the International Electrotechnical Commission (IEC). It supersedes BS EN 60603-7:1993 which will be withdrawn 1997-09-01.

Attention is drawn to the statement in the foreword to the European Standard concerning patents, in particular the patent concerning 8-way connectors for interconnect systems.

Cross-references

Publication referred to	Corresponding British Standard
IEC 50 (581):1978	BS 4727 <i>Glossary of electrotechnical, power, telecommunication, electronics, lighting and colour terms</i> Part 1 <i>Terms common to power, telecommunications and electronics</i> Group 13:1991 <i>Electromechanical components for electronic equipment</i>
EN 60068-1:1994 (IEC 68-1:1988)	BS EN 60068 <i>Environmental testing</i> Part 1:1995 <i>General and guidance</i> BS 6221 <i>Printed wiring boards</i>
IEC 326-3:1991	Part 3:1991 <i>Guide for the design and use of printed wiring boards</i> BS EN 60352 <i>Solderless connections</i>
EN 60352-2:1990 (IEC 352-2:1990)	Part 2:1997 <i>Solderless crimped connections — General requirements, test methods and practical guidance</i>
EN 60352-3:1994 (IEC 352-3:1993)	Part 3:1995 <i>Solderless accessible insulation displacement connections — General requirements, test methods and practical guidance</i>
EN 60352-4:1994 (IEC 352-4:1994)	Part 4:1995 <i>Solderless non-accessible insulation displacement connections — General requirements, test methods and practical guidance</i> BS 5772 <i>Specification for electromechanical components for electronic equipment: basic testing procedures and measuring methods</i>
IEC 512-3:1976	Part 3:1979 <i>Current-carrying capacity tests</i>
IEC 512-4:1976	Part 4:1979 <i>Dynamic stress tests</i>
IEC 512-5:1992	Part 5:1993 <i>Impact tests (free components), static load tests (fixed components), endurance tests and overload tests</i>
IEC 512-6:1984	Part 6:1984 <i>Climatic tests and soldering tests</i>
IEC 603-1:1991	BS QC 010000:1993 <i>Harmonized system of quality assessment for electronic components. Connectors for frequencies below 3 MHz for use with printed boards. Generic specification. General requirements and guide for the preparation of detail specifications with assessed quality.</i>

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, the EN title page, pages 2 to 70, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Descriptors: Printed board connector, 8-way, ISDN

English version

Connectors for frequencies below 3 MHz for use with
printed boards
Part 7: Detail specification for
connectors, 8-way, including fixed and free connectors
with common mating features, with assessed quality

(IEC 603-7:1996)

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

Partie 7: Spécification particulière pour
connecteurs à 8 voies, comprenant des
embases et des fiches ayant des
caractéristiques d'accouplement
communes, avec assurance de la qualité
(CEI 603-7:1996)

Steckverbinder für Frequenzen
unter 3 MHz für gedruckte Schaltungen
Teil 7: Bauartspezifikation für
Steckverbinder mit bewerteter
Qualität, 8-polig, einschließlich fester und
freier Steckverbinder mit gemeinsamen
Steckmerkmalen
(IEC 603-7:1996)

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

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

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Foreword

The text of document 48B/489/FDIS, future edition 2 of IEC 603-7, 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 on 1996-12-09.

This European Standard supersedes EN 60603-7:1993.

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) 1997-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-09-01

Annexes designated “normative” are part of the body of the standard. In this standard, Annex A, Annex B, Annex C, Annex D and Annex ZA are normative. Annex ZA has been added by CENELEC.

Information from the foreword of the International Standard considered necessary:

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this International Standard may involve the use of a patent concerning connectors, 8-way, for interconnect systems given in clauses 3 and 4.

The IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the IEC that he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with the IEC. Information may be obtained from:

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Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 603-7:1996 was approved by CENELEC as a European Standard without any modification.

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1 Scope

This part of IEC 603 covers an 8-way connector system of 4, 6 or 8 contacts consisting of a range of free and fixed connectors. The connectors cover a variety of different mounting configurations and termination types with a common mating configuration.

Fixed connectors are provided with terminations suitable for solder, insulation displacement, screw terminal, crimp, insulation piercing termination, printed-board mounting and flying leads.

Free connectors are provided for crimp, insulation piercing and insulation displacement terminations to cable assemblies with tinsel, stranded or solid wire conductors. At the present time, free connectors may only be available with a limited range of terminations and variants.

1.1 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 603. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 603 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 50(581):1978, *International Electrotechnical Vocabulary (IEV) — Chapter 581: Electro-mechanical components for electronic equipment*.

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

IEC 326-3:1991, *Printed boards — Part 3: Design and use of printed boards*.

IEC 352-2:1990, *Solderless connections — Part 2: Solderless crimped connections — General requirements, test methods and practical guidance*.

IEC 352-3:1993, *Solderless connections — Part 3: Solderless accessible insulation displacement connections — General requirements, test methods and practical guidance*.

IEC 352-4:1994, *Solderless connections — Part 4: Solderless non-accessible insulation displacement connections — General requirements, test methods and practical guidance*.

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

IEC 512-2:1985, *Electromechanical components for electronic equipment, basic testing procedures and measuring methods — Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests*.

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 512-5:1992, *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 512-8:1993, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods — Part 8: Connector tests (mechanical) and mechanical tests on contacts and terminations*.

IEC 603-1:1991, *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*.

Amendment 1 (1992)

IEC 664-1:1992, *Insulation coordination for equipment within low-voltage systems — Part 1: Principles, requirements and tests*.

IEC 807-1:1991, *Rectangular connectors for frequencies below 3 MHz — Part 1: Generic specification — General requirements and guide for the preparation of detail specifications for connectors with assessed quality.*

IEC QC 001001:1986, *Basic rules of the IEC quality assessment system for electronic components (IECQ).*
Amendment 2 (1994)
Amendment 3 (1995)

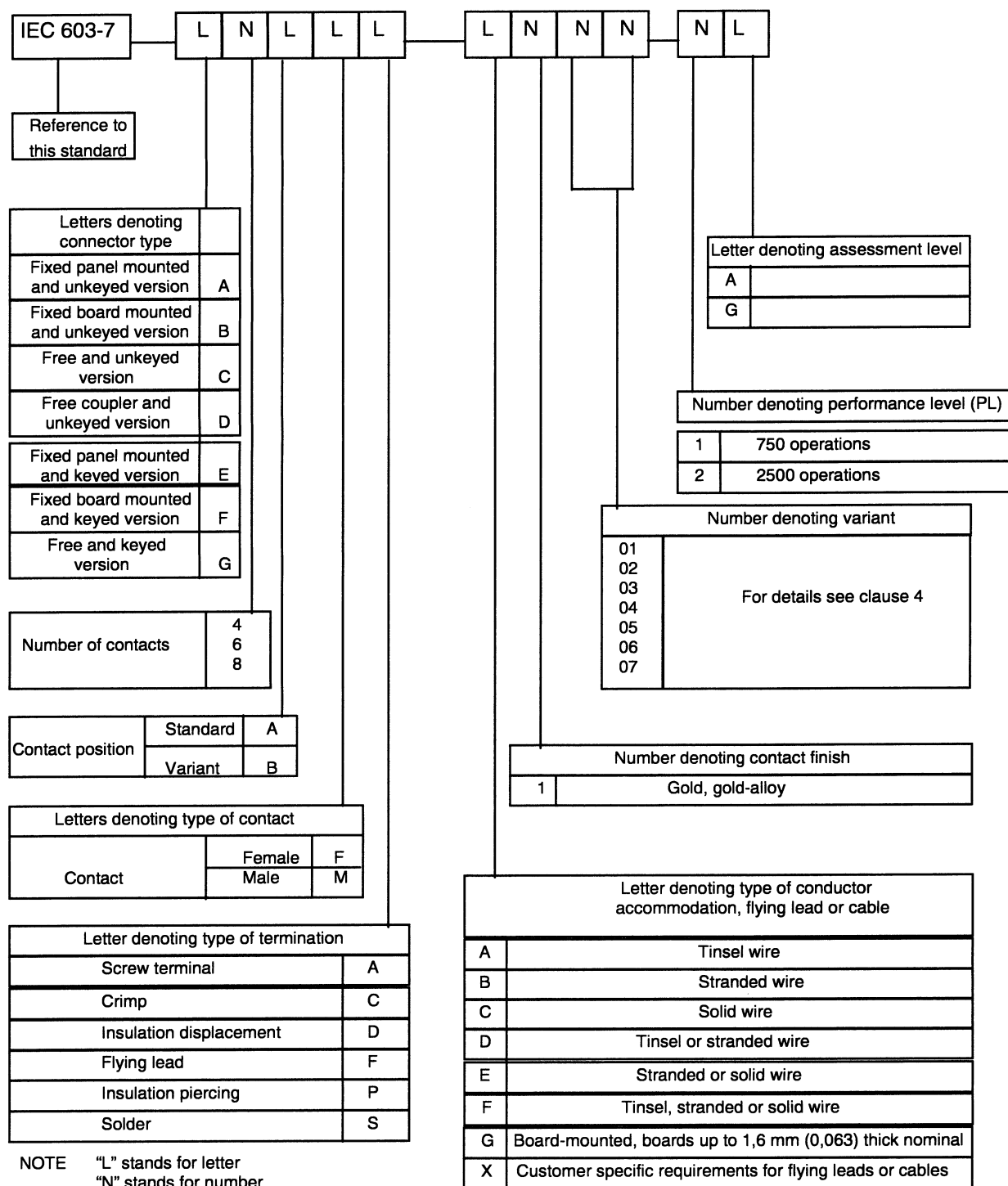
IEC QC 001002:1986, *Rules of procedure of the IEC quality assessment system for electronic components (IECQ).*
Amendment 2 (1994)

ISO 468:1982, *Surface roughness — Parameters, their values and general rules for specifying requirements.*

ITU-T K20:1984, *Resistibility of telecommunication switching equipment to overvoltages and overcurrents.*

2 IEC type designation

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



Example:

IEC 603-7 B8AFS-G101- 2G: Fixed connector, board mounted, unkeyed having 8 female contacts in standard contact positions, gold plated to be soldered into a printed board having a thickness of 1,6 mm nominal variant 01, meeting performance level 2, assessment level G.

2.1 Terminologie

Pour les définitions des termes utilisés, voir la CEI 50(581).

3 Caractéristiques communes et vue isométrique

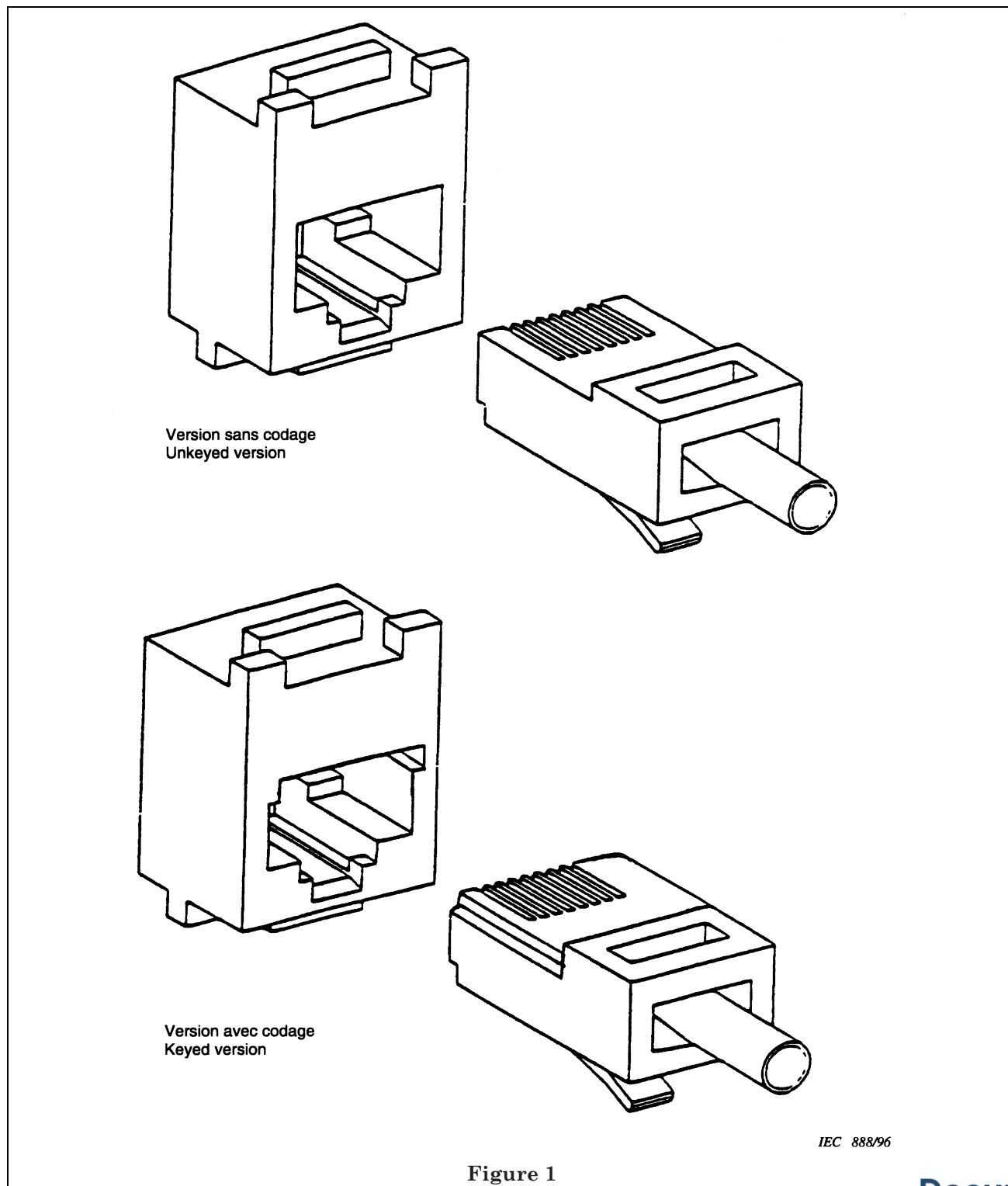
3.1 Vue isométrique

2.1 Terminology

For definitions of terms used, refer to IEC 50(581).

3 Common features and isometric view

3.1 Isometric view



3.2 Informations concernant la face d'accouplement

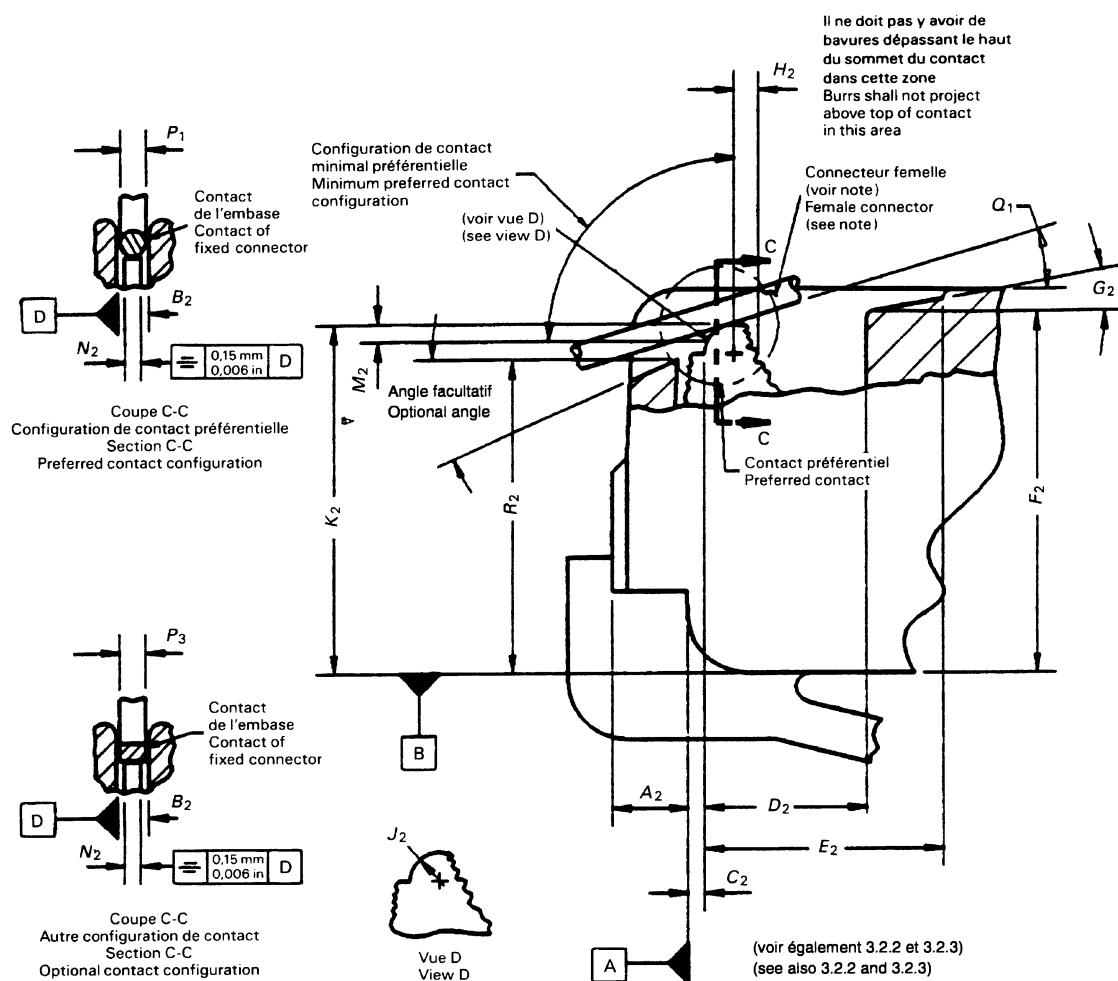
Pour les besoins de cette spécification, les informations concernant les dimensions sont détaillées en plus de celles qui sont spécifiées dans la CEI 603-1 (et dans la CEI 807-1). Il est donc nécessaire de lire ensemble 3.2.1 à 3.2.3 inclus.

3.2.1 Contacts

3.2 Mating information

For the purpose of this specification, dimensional information in excess of that specified in IEC 603-1 (and IEC 807-1) is detailed. It is, therefore, necessary to read 3.2.1 to 3.2.3 inclusive in conjunction with each other.

3.2.1 Contacts



IEC 889/96

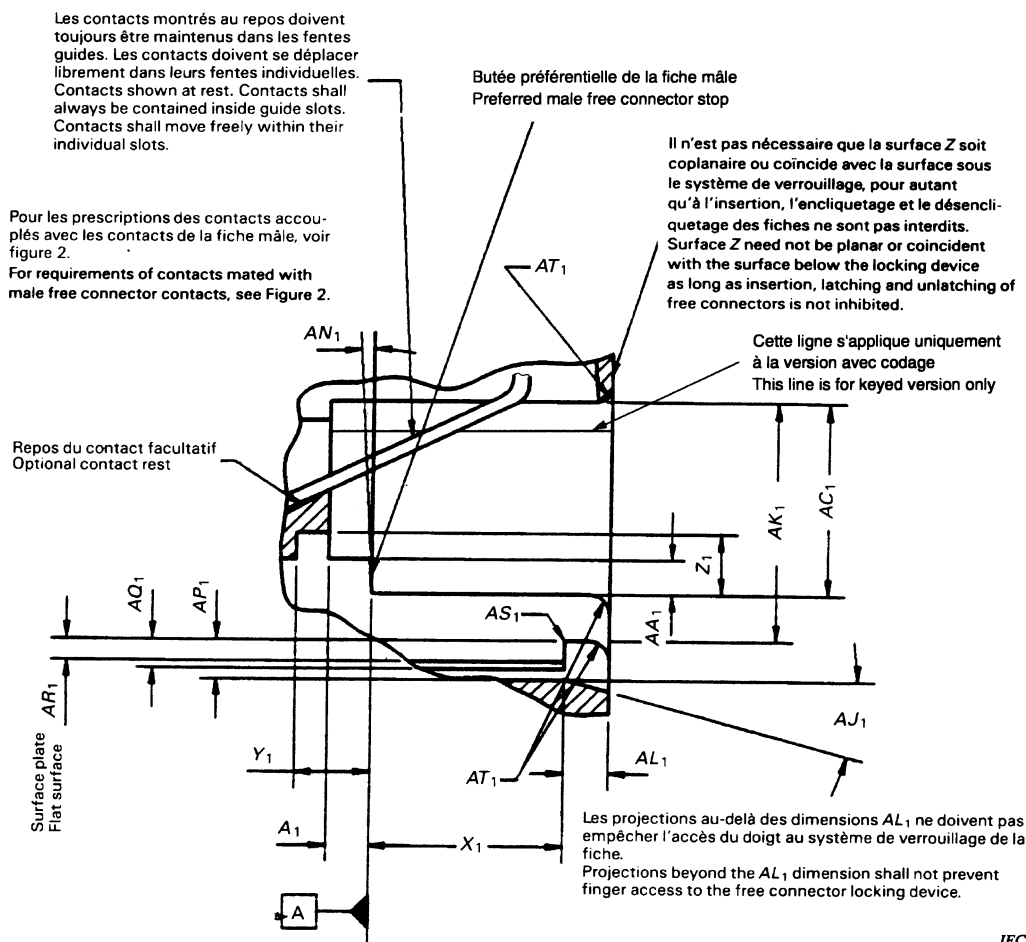
NOTE Les informations montrées concernant la face d'accouplement ne peuvent être respectées qu'avec une fiche équipée de câble.

NOTE The mating information shown can only be achieved with a free connector with cable attached.

Table 1

Letter	Maximum		Minimum	
	mm	in	mm	in
A_2	1,45	0,57	0,89	0,035
B_2	0,61	0,024	0,51	0,020
C_2	0,46	0,018	0,03	0,001
D_2			2,79	0,110
E_2			4,11	0,162
F_2	6,22	0,245		
H_2			0,38	0,015
J_2	0,64	0,025	0,38	0,015
K_2	6,15	0,242	5,89	0,232
M_2			0,30	0,012
N_2			0,28	0,011
P_1	0,50	0,0195	0,45	0,0177
P_3	0,50	0,0195	0,36	0,014
R_2	4,83	0,190		

Letter	Maximum	Suggested minimum
G_2	10°	
Q_1	24°	11°



IEC 891/96

Figure 3b — Section A - A. All internal corners in the connector cavity shall be 0,38 mm (0,015 in) radius maximum unless otherwise specified

Table 2

Letter	Maximum		Minimum		Nominal (ref)	
	mm	in	mm	in	mm	in
A_1			1,47	0,058		
B_1	0,71	0,028				
K_1	5,84	0,230				
S_1	12,04	0,474	11,84	0,466	11,94	0,470
T_1	4,19	0,165	3,94	0,155		
W_1	6,38	0,251	6,22	0,245		
X_1	6,86	0,270	6,68	0,263		
Y_1			2,34	0,092		
Z_1			2,08	0,082		
AA_1	1,24	0,049				
AB_1	0,38	0,015				
AC_1	6,96	0,274	6,76	0,266	6,86	0,270
AD_1	0,13	0,005				
AH_1					1,02 PV ^a TP ^b	0,040 PV ^a TP ^b
AK_1	8,66	0,341	8,38	0,330		
AL_1			1,40	0,055		
AM_1			1,52	0,060		
AP_1			1,27	0,050		
AQ_1			0,97	0,038		
AR_1			0,71	0,028		
AS_1	0,08	0,003				
AT_1					0,76	0,030
SA_1	1,32	0,052	1,22	0,048		
SB_1	2,54	0,100	2,29	0,090		
SD_1	0,79	0,031	0,74	0,029		
SE_1	1,32	0,052	1,22	0,048		
^a PV indique la position vraie.						
^b TP indicates true position.						

Table 2

Letter	Maximum	Nominal (ref)
AJ_1		15°
AN_1	3°30'	

3.2.3 Fiche (équipée de câble)

Version sans codage
Unkeyed version

3.2.3 Free connector (with cable attached)

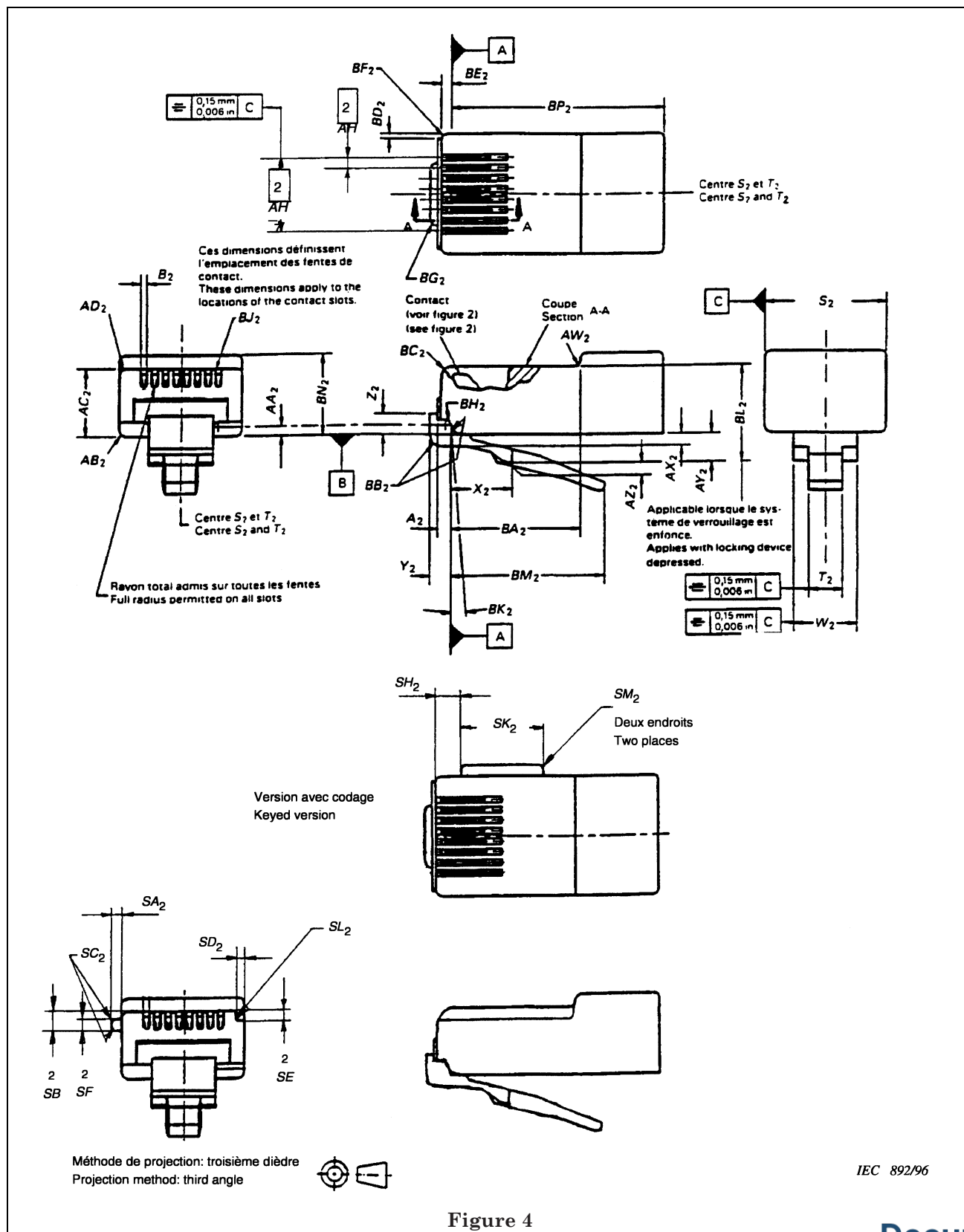


Table 3

Letter	Maximum		Minimum		Nominal (ref)	
	mm	in	mm	in	mm	in
A_2^a	a	a	a	a	1,17	0,046
B_2^a	a	a	a	a	0,56	0,022
S_2	11,79	0,464	11,58	0,456	11,68	0,460
T_2	3,38	0,133	3,12	0,123		
W_2	6,17	0,243	6,02	0,237		
X_2	6,02	0,237	5,77	0,227		
Y_2	2,34	0,092				
Z_2	2,06	0,081				
AA_2			1,24	0,049		
AB_2	0,64	0,025	0,38	0,015		
AC_2	6,71	0,264	6,50	0,256	6,60	0,260
AD_2	0,64	0,025	0,13	0,005		
AH_2					1,02	0,040
SA_2	1,02	0,040	0,76	0,030		
SB_2	2,06	0,081	1,80	0,071		
SC_2	0,33	0,013	0,16	0,006		
SD_2	0,94	0,037	0,84	0,033		
SE_2	1,58	0,062	1,47	0,058		
SF_2	1,50	0,059	1,35	0,053		
SH_2	1,78	0,070	0,76	0,030	1,27	0,050
SK_2	7,11	0,280	6,60	0,260	6,86	0,270
SL_2	0,13	0,005				
SM_2	0,38	0,015	0,13	0,005	0,25	0,010
AW_2	0,51	0,020	0,25	0,010		
AX_2	1,32	0,052				
AY_2	2,87	0,113	2,67	0,105		
AZ_2	0,64	0,025				
BA_2			12,32	0,485		
BB_2	1,14	0,045	0,38	0,015		
BC_2	1,02	0,040	0,51	0,020		
BD_2			0,51	0,020		
BE_2	1,09	0,043				
BF_2	0,64	0,025				
BG_2	0,64	0,025	0,38	0,015		
BH_2					0,13	0,005
BL_2	8,36	0,329				
BM_2	15,88	0,625	14,61	0,575		
BN_2	8,00	0,315				
BP_2	23,11	0,910				

^a See Table 1

Letter	Maximum	Nominal (ref)
BJ_2		Rayon complet Full radius
BK_2	3°30'	

3.3 Survey of types

Table 4

Type and number of contacts	A8F	B8F	C8M
Number of variants	3	7	1
Current-carrying capacity at 70 °C (see clause 6)	0,2 A		
Minimum creepage and clearance distances ^a			
Creepage distance between contacts and chassis	1,4 mm (0,055 in)		
Clearance distance between contacts and chassis	0,51 mm (0,020 in)		
Creepage distance between adjacent contacts	0,36 mm (0,014 in)		
Clearance distance between adjacent contacts	0,36 mm (0,014 in)		
^a Application information: Permissible operating voltages depend on the application or specified safety requirements. Insulation co-ordination is not required for this connector; therefore, the creepage and clearance distance in IEC 664-1 are reduced and covered by overall performance requirements. Reductions in creepage or clearance distances may occur due to the printed board or the wiring used and shall duly be taken into account.			

4 Dimensions

4.1 General

Dimensions are given in millimetres, with inch equivalents. The original dimensions are in inches. 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.

4.1.1 Contact arrangement of all connector types

Table 5

Number of contacts	Contact position designation	Contact position							
		1	2	3	4	5	6	7	8
4	A			×	×	×	×		
6	A		×	×	×	×	×	×	
8	A	×	×	×	×	×	×	×	×

4.2 Type A — Embases (montage sur panneau)

4.2 Type A — Fixed connectors (panel-mounted)

4.2.1 Dimensions

4.2.1 Dimensions

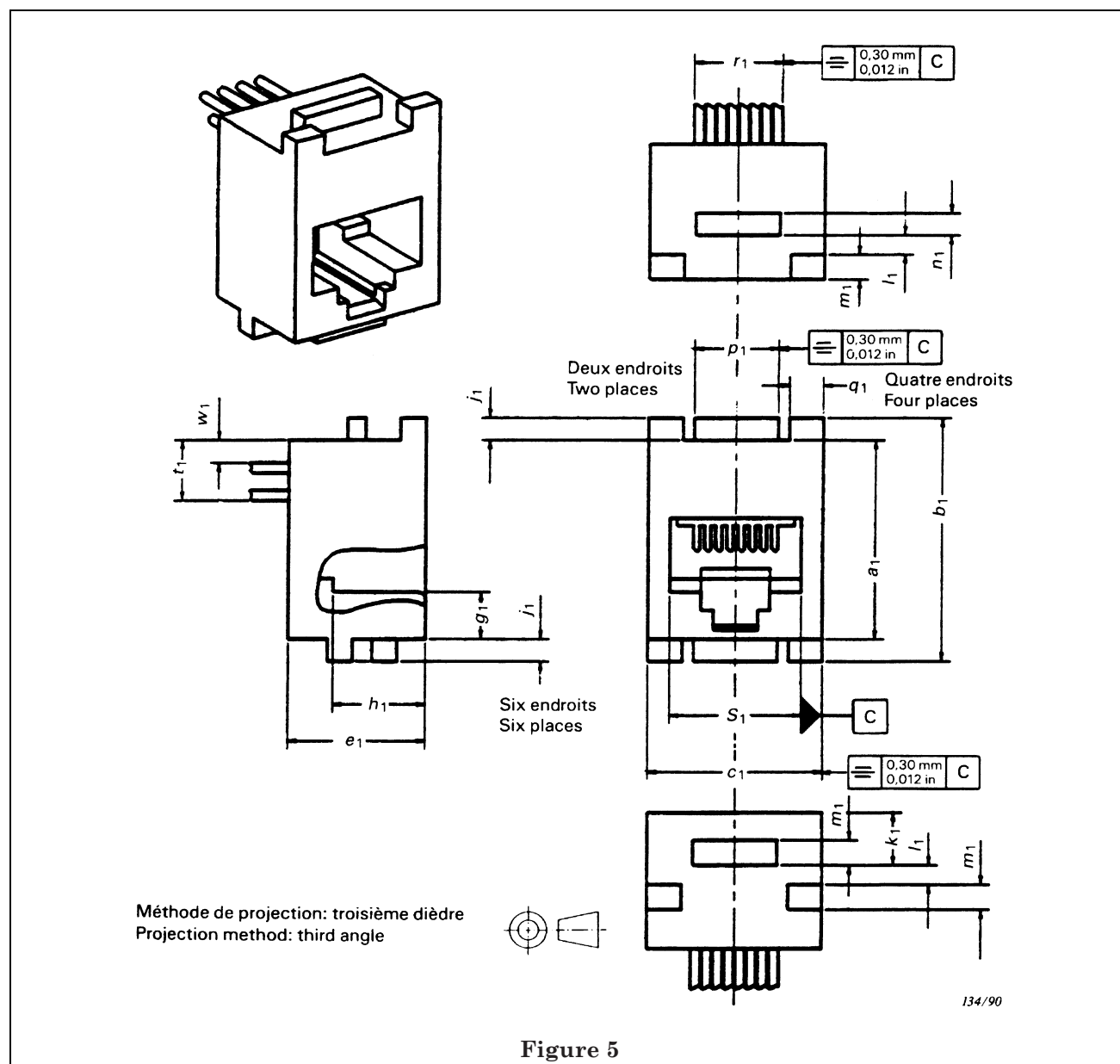
4.2.1.1 *Embase, contacts femelles avec fils volants — variante 01*4.2.1.1 *Fixed connector, female contacts with flying leads — variant 01*

Figure 5

Table 6

Letter	Maximum		Minimum		Nominal (ref)	
	mm	in	mm	in	mm	in
a_1	18,54	0,730	18,03	0,710		
b_1	22,86	0,900				
c_1	16,10	0,634	15,60	0,614		
e_1	12,70	0,500	12,19	0,480		
g_1	4,45	0,175	4,19	0,165		
h_1	8,51	0,335				
j_1	2,16	0,085	1,91	0,075		
k_1	5,08	0,200	4,57	0,180		
l_1	1,91	0,075	1,65	0,065		
m_1	2,41	0,095	2,16	0,085		
n_1	2,16	0,085	1,91	0,075		
p_1	7,87	0,310	7,37	0,290		
q_1	3,35	0,132	2,84	0,112		
r_1	10,01	0,394				
t_1	5,72	0,225				
w_1			1,02	0,040		
S_1					11,94	0,470