

Connectors for use in d.c., low-frequency analogue and digital high speed data applications —

**Part 3-100: Rectangular connectors
with assessed quality — Detail
specification for a range of shielded
connectors with trapezoidal-shaped
shells and non-removable ribbon
contacts on a 1,27 mm double row**

The European Standard EN 61076-3-100:2004 has the status of a
British Standard

ICS 31.220.10

National foreword

This British Standard is the official English language version of EN 61076-3-100:2000. It is identical with IEC 61076-3-100:1999.

The UK participation in its preparation was entrusted by Technical Committee EPL/48, Electromechanical components and mechanical structures for electronic equipment, to Subcommittee EPL/48/2, Connectors 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 subcommittee 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.

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

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 42, an inside back cover and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 20 October 2004

© BSI 20 October 2004

ISBN 0 580 44621 2

**Connectors for use in d.c., low-frequency analogue and
digital high speed data applications**
Part 3-100: Rectangular connectors with assessed quality
Detail specification for a range of shielded connectors with
trapezoidal-shaped shells and non-removable ribbon contacts
on a 1,27 mm double row
(IEC 61076-3-100:1999)

Connecteurs pour applications
analogiques en courant continu et à
basse fréquence et pour applications
numériques utilisant des débits élevés
pour le transfert des données
Partie 3-100: Connecteurs
rectangulaires sous assurance de
la qualité
Spécification particulière pour une
famille de connecteurs blindés à boîtiers
trapézoïdaux, deux rangées au pas de
1,27 mm et contacts à lame, non
démontables
(CEI 61076-3-100:1999)

Steckverbinder für Gleichspannungs-
und Niederfrequenzanwendungen sowie
digitale Anwendungen mit hoher
Übertragungsrate
Teil 3-100: Rechteckige Steckverbinder
mit bewerteter Qualität
Bauartspezifikation für eine Reihe von
geschirmten Steckverbindern mit
trapezförmigen Kragen und nicht
auswechselbaren Streifenkontakten in
einem Raster von 1,27 mm, doppelreihig
(IEC 61076-3-100:1999)

This European Standard was approved by CENELEC on 1999-12-01. 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 document 48B/787/FDIS, future edition 1 of IEC 61076-3-100, 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 61076-3-100 on 1999-12-01.

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) 2000-10-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2003-01-01

Annexes designated "normative" are part of the body of the standard.

In this standard, annex ZA is normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61076-3-100:1999 was approved by CENELEC as a European Standard without any modification.

CONTENTS

Clause	Page
1 General data.....	5
1.1 Recommended method of mounting.....	5
1.1.1 Minimum and maximum number of contacts.....	5
1.2 Rating and characteristics.....	5
1.3 Normative references.....	6
1.4 Marking.....	7
1.5 IEC type designation.....	7
1.6 Ordering information.....	9
2 Technical data.....	9
2.1 General.....	9
2.2 Survey of styles and variants.....	9
2.3 Information on application.....	9
3 Dimensional information.....	9
3.1 General.....	9
3.2 Isometric view and common features (with locking devices).....	10
3.3 Mating information.....	10
3.3.1 Contact arrangements.....	10
3.3.2 Mating face dimensions.....	12
3.3.3 Contact mating dimensions.....	14
3.4 Fixed connectors.....	14
3.4.1 Dimensions.....	15
3.4.2 Terminations.....	20
3.5 Free connectors.....	21
3.5.1 Dimensions.....	21
3.5.2 Termination.....	24
3.6 Accessories.....	24
3.7 Mounting information.....	24
3.7.1 Hole pattern on printed boards.....	24
3.7.2 Panel cutout dimensions.....	28
4 Characteristics.....	29
4.1 Climatic category.....	29
4.2 Electrical.....	29
4.2.1 Creepage and clearance distance.....	29
4.2.2 Voltage proof.....	29
4.2.3 Current-carrying capacity.....	29
4.2.4 Initial contact resistance.....	29
4.2.5 Initial insulation resistance.....	30
4.3 Mechanical.....	30
4.3.1 Mechanical operation.....	30
4.3.2 Insertion and withdrawal forces.....	30

Clause	Page
5 Test schedule	31
5.1 General	31
5.2 Test schedules	32
5.2.1 Basic (minimum) test schedule	32
5.2.2 Full test schedule	32
6 Quality assessment procedures	38
6.1 Qualification approval testing	38
6.1.1 Method 1	38
6.1.2 Method 2	39
6.2 Quality conformance inspection	39
6.2.1 Lot-by-lot tests	39
6.2.2 Periodic tests	39
6.3 Delayed delivery, re-inspection	40
Annex ZA (normative) Normative references to international publications with their corresponding European publications	41

CONNECTORS FOR USE IN DC, LOW-FREQUENCY ANALOGUE AND DIGITAL HIGH SPEED DATA APPLICATIONS –

Part 3-100: Rectangular connectors with assessed quality – Detail specification for a range of shielded connectors with trapezoidal-shaped shells and non-removable ribbon contacts on a 1,27 mm double row

1 General data

1.1 Recommended method of mounting

A complete connector consists of a fixed connector mounted vertically or at a right angle to the printed circuit board or panel mounted. The free connector is terminated to a cable consisting of 14 to 110 conductors.

1.1.1 Minimum and maximum number of contacts

The fixed and free connectors have a range of 14 to 110 contacts. The shape of the shell prevents mismatching.

Examples of contact arrangements are shown in figure 2.

1.2 Rating and characteristics

Working voltage:	250 V a.c.
Current rating:	0,5 A (0,005 mm), 1 A (0,09 mm)
Insulation resistance:	500 M Ω minimum (initial)
Climatic category:	PL1: 55/085/21 PL2:55/085/0
Printed board thickness:	0,8 mm 1,0 mm 1,2 mm 1,6 mm 2,4 mm
Contact spacing:	
Mating side:	1,27 mm pitch (double rows)
Printed board side:	2,54 mm pitch $\times$ 1,905 mm (four rows)

1.3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

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*
Amendment 1 (1992)

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

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 60512-1:1994, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 1: General*

IEC 60512-2:1985, *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*
Amendment 1 (1994)

IEC 60512-3:1976, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 3: Current-carrying capacity tests*

IEC 60512-4:1976, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 4: Dynamic stress tests*

IEC 60512-5:1992, *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 60512-6:1984, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 6: Climatic tests and soldering tests*

IEC 60512-7:1993, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 7: Mechanical operating tests and sealing tests*

IEC 60512-8:1993, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 8: Connector tests (mechanical) and mechanical tests on contacts and terminations*

IEC 60512-9:1992, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 9: Miscellaneous tests*

IEC 60512-11-1:1995, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 11: Climatic tests – Section 1: Test 11a – Climatic sequence*

IEC 61076-1:1995, *Connectors with assessed quality, for use in d.c., low frequency analogue applications and in digital high speed data applications – Part 1: Generic specification*

IEC 61076-3, — *Connectors with assessed quality, for use in d.c., low frequency analogue and digital high speed data applications – Part 3: Rectangular connectors*¹⁾

1.4 Marking

The marking of the connector and the package shall be in accordance with the requirements of the sectional specification IEC 61076-3.

1.5 IEC type designation

Each connector and its associated package shall be marked in accordance with the requirements specified in 2.5 of IEC 61076-1.

¹⁾ To be published.



1.6 Ordering information

For ordering connectors according to this detail specification, the type designation described in 1.5 shall be used.

2 Technical data

2.1 General

This International Standard applies to a range of shielded two-part connectors with trapezoidal-shaped shells and non-removable ribbon contacts on 1,27 mm double rows.

The fixed connectors are provided with a post either for dip solder (type A, B, C, D) or non-accessible insulation displacement terminations (type E). The free connectors are provided with non-accessible insulation displacement terminations.

Insulation displacement terminations are applicable to insulation displacement connection made with ribbon cable (type E) or single wires (type K, L) having:

- solid conductors: 0,25 mm diameter (0,05 mm²) (AWG 30);
- stranded conductors: 0,09 mm² (AWG 28) 7 strands.

2.2 Survey of styles and variants

Table 1 – Style survey

Type of connector	Style of connectors	Reference letter of the style
Fixed	Shielded right-angle with locking latch	A
	Shielded right-angle with screw lock	B
	Shielded vertical with locking latch	C
	Shielded vertical with screw lock	D
	Shielded with locking latch, cable type	E
Free	Shielded with locking latch	K
	Shielded with screw lock	L

2.3 Information on application

See clause 3.

3 Dimensional information

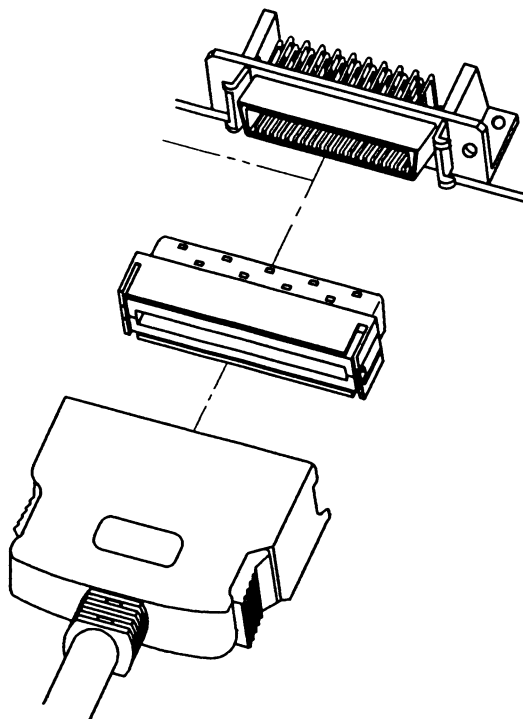
3.1 General

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

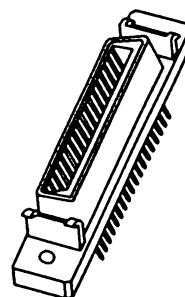
In cases where the tolerance is unspecified, $\pm 0,3$ mm is the tolerance required for millimetre dimensions stated to one decimal place, $\pm 0,13$ mm is the tolerance required for millimetre dimensions stated to two decimal places and $\pm 0,10$ mm is the tolerance required for millimetre dimensions stated to three decimal places.

Dimensions in parentheses are only for reference on design, but not for inspection.

3.2 Isometric view and common features (with locking devices)



IEC 1218/99



IEC 1219/99

Figure 1a – Shielded right-angle fixed connector with latch locking device (style A) and free connector with latch locking device (style K) and cover case

Figure 1b – Shielded vertical fixed connector with latch locking (style C)

Figure 1 – Connectors with latch locking devices

3.3 Mating information

3.3.1 Contact arrangements

Contact arrangements, mating face view of fixed connectors. Mating face of free connectors is mirror image.

The trapezoidal-shaped shell prevents mismating.

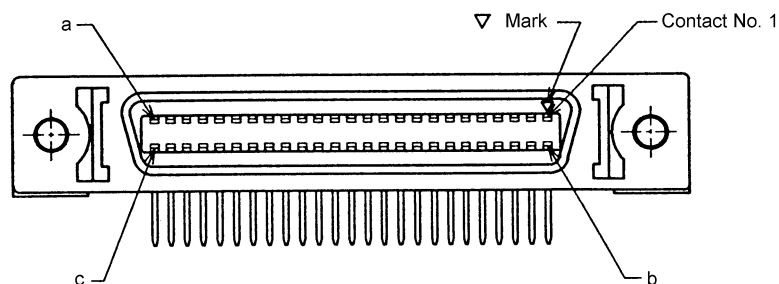


Figure 2 – Fixed connectors

IEC 1220/99

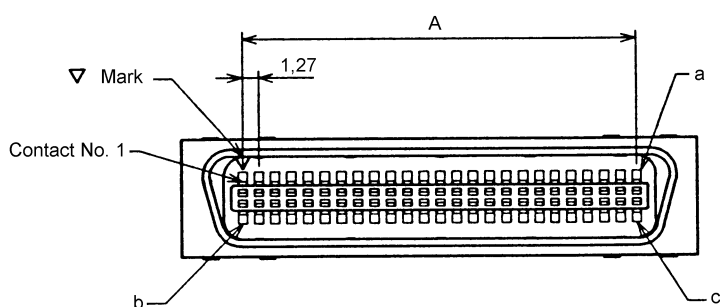


Figure 3 – Free connectors

IEC 1221/99

Table 2 – Contact number and position

Number of contacts	Contact number			Dimension A mm
	a	b	c	
14	7	8	14	7,62
20	10	11	20	11,43
26	13	14	26	15,24
36	18	19	36	21,59
40	20	21	40	24,13
50	25	26	50	30,48
68	34	35	68	41,91
80	40	41	80	49,53
96	48	49	96	59,69
100	50	51	100	62,23
110	55	56	110	68,58

3.3.2 Mating face dimensions

3.3.2.1 Fixed connectors

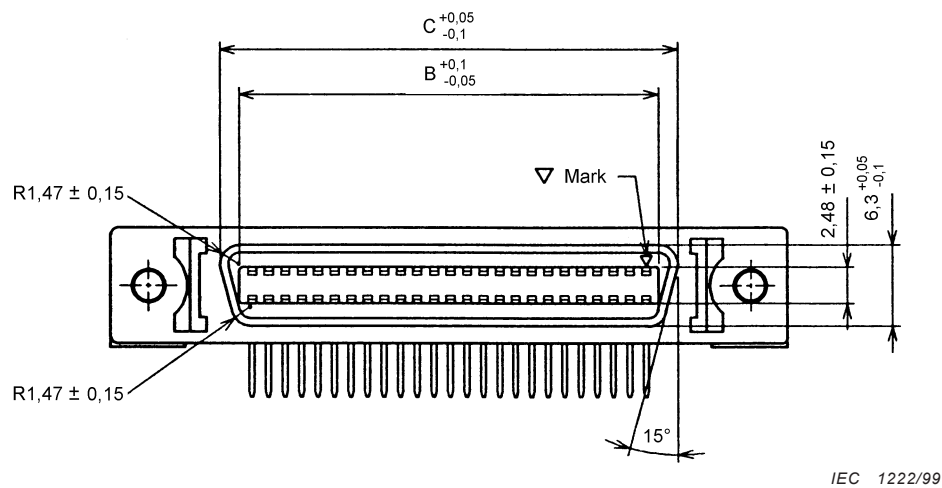


Figure 4 – Fixed connectors

Table 3 – Dimensions of fixed connectors

Number of contacts	Dimensions mm	
	B	C
14	9,62	12,62
20	13,43	16,43
26	17,24	20,24
36	23,59	26,59
40	26,13	29,13
50	32,48	35,48
68	43,91	46,91
80	51,53	54,53
96	61,69	64,69
100	64,23	67,23
110	70,58	73,58