INTERNATIONAL STANDARD

IEC 61076-4-108

QC 480301XX0009

First edition
2002-02

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 60917-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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 60917-1

FOREWORD

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International Standard IEC 61076-4-108 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/1122/FDIS	48B/1170/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.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated when a new edition is prepared.

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).

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

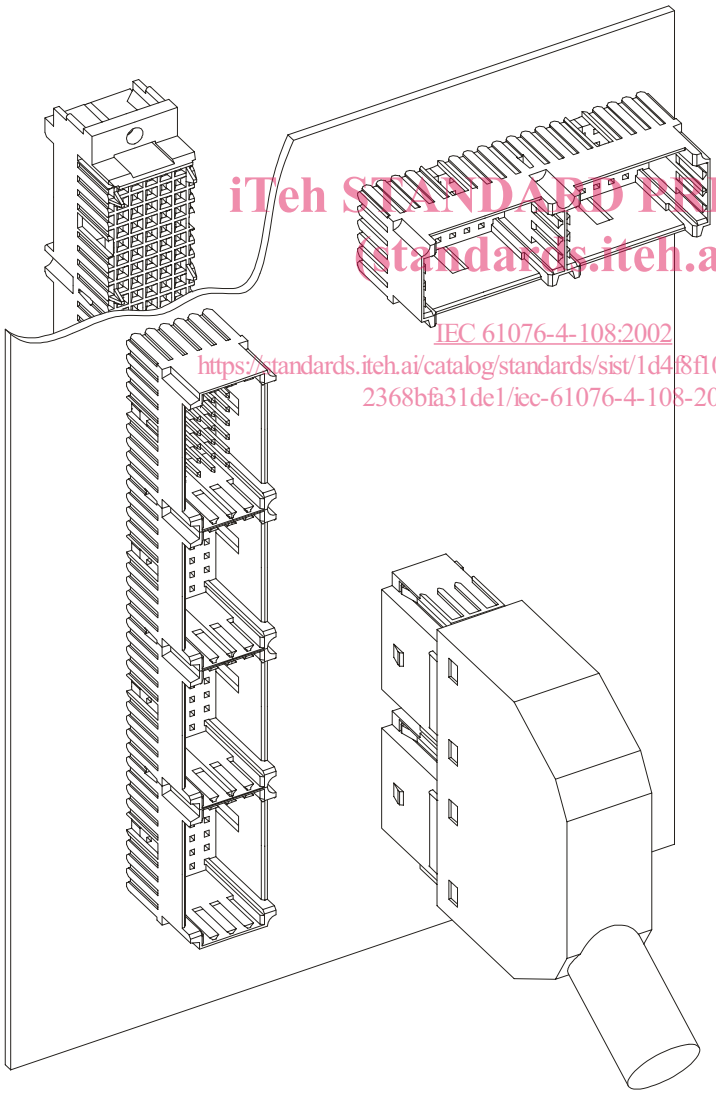
Annex A is for information only.

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

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- withdrawn;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

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 60917-1

IEC SC 48B – Connectors Specification available from: IEC Central Office or from the addresses shown on the inside cover. ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION in accordance with IEC 61076-1:1995.	IEC 61076-4-108 QC 480301XX0009
 IEC 395/02	**Cable connector system,** **– 15 mm mounting pitch –,** for printed boards and backplanes, grid of 2,5 mm in accordance with IEC 60917-1, integrated shielding function. Modular, five row connector, with shielding, ground contacts and coding features. Fixed board connectors 50 mm to 250 mm length Free cable connectors, 25 mm to 100 mm length. Performance levels (PL): 1, 2 Assessment level: G

Information on the availability of components qualified to this detail specification is given in the qualified products list.

1 General data

This specification describes adapter connectors of modular metric construction in conformance with IEC 60917-1.

Interface connectors and cable connectors are used to make the electrical connection between a closed functional unit, for example a subrack, and its environment. The modular construction and the various connector styles enable a suitable connector to be used in equipment practices for electronic equipment such as data systems, communications technology, telecommunications engineering and safety and security systems, power engineering and automation technology.

Throughout this specification all dimensions are in millimetres.

1.1 Recommended method of mounting

The connectors are used for connecting a printed board to a cable (see also figure 1).

The connectors are matched to the 2,5 mm contact grid. They can be mounted in an existing grid coordinate system horizontally or vertically or overlapping from module to module or from subrack to subrack. Care shall be taken to ensure that the contact areas of the male contacts match the position of the female contacts. The engaging areas of the male contacts on the rear of a backplane correspond to the male contact dimensions according to IEC 61076-4-100.

NOTE In view of the large number of different mounting and application options, the contact quality between male and female contacts must be guaranteed.

In the case of a subrack, for example, there are three mounting options:

a) Rear of the backplane
b) Module side of the backplane
c) Front of the module

Fixed connectors:

For application on the rear of a backplane, a male connector body (preferably of flanged construction) is pushed over the rear plug-in connections of male contacts which have already been pressed in, for example over the terminals of a male connector according to IEC 61076-4-100, and secured in position.

For use on the module side of a backplane, a male connector body can be mounted in the same way over press-in male contacts.

Apart from flange mounting, the male connector body can also be fixed unsupported or directly to the male contacts.

For application on the side of a module or at the rear of a backplane, an interface male connector (preferably without flange) can be pressed into metal-plated holes in the backplane.

For application at the front of a module, a male connector body shall be equipped with male contacts which are mounted, for example pressed in, on the module printed board with terminals bent at right angles.

Free connectors:

The female connector equipped with female contacts is secured in a connector housing at which the cable is mounted with strain relief. The shielding braid of a cable shall be conductively connected to the connector housing consisting of shielded metal caps. The individual wires of a cable shall be connected at the female contacts directly by means of crimped or insulation displacement connections.

1.1.1 Maximum number of contacts

Fixed board connector

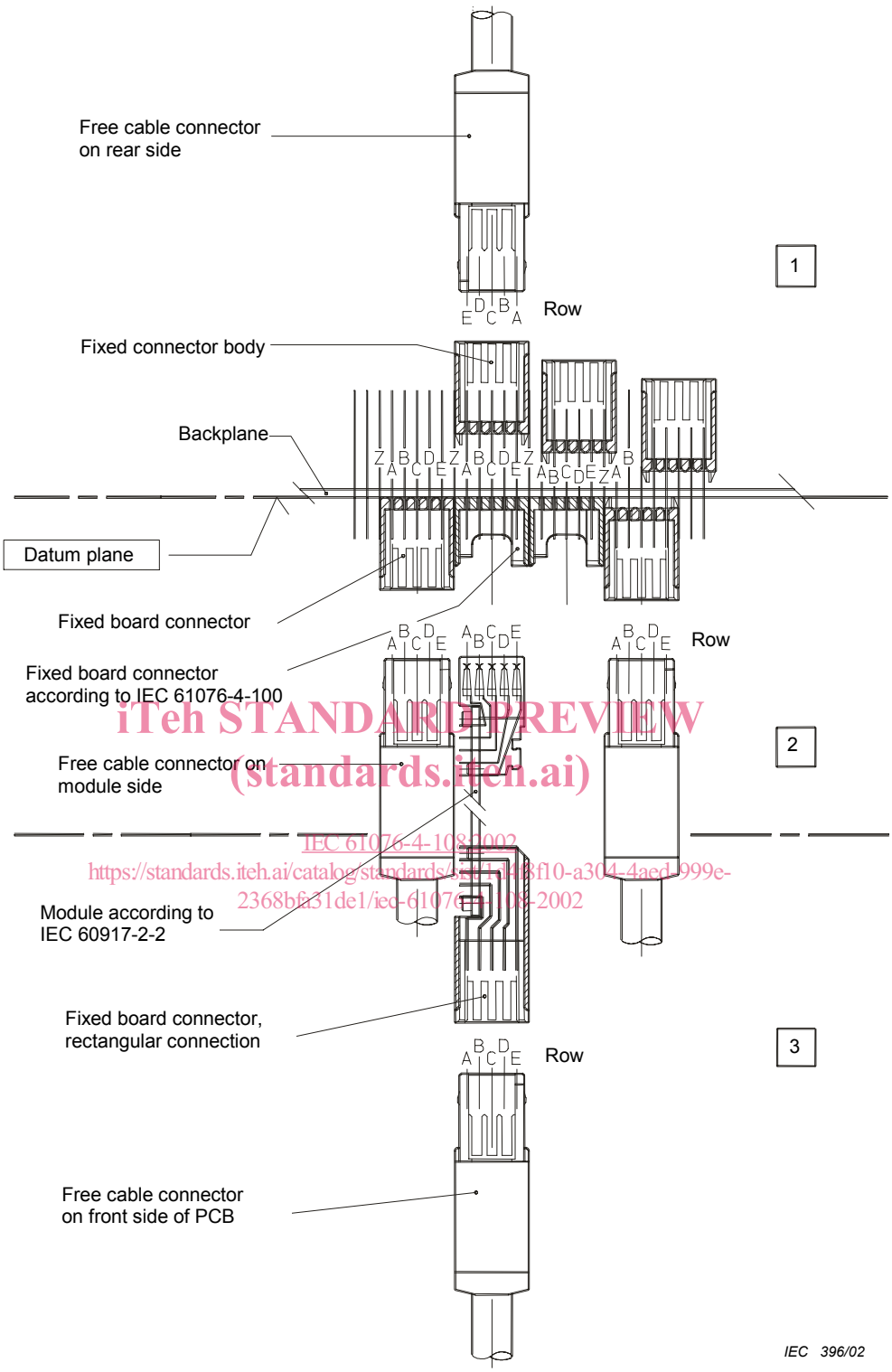
Table 1 – Maximum number of contacts – fixed connector

System units (Height = Coordination dimension)	**1 SU** (25)	**2 SU** (50)	**4 SU** (100)	**9 SU** (225)	**10 SU** (250)
Styles (see 2.2.1.1)	**J**	**B;P;K**	**D;L;R**	**G;U**	**H;V**
Signal contacts	41	82	164	369	410
Ground contacts	4	8	16	36	40

Free cable connector

Table 2 – Maximum number of contacts – free cable connector

System units (Height = Coordination dimension)	**1 SU** (25)	**2 SU** (50)	**4 SU** (100)
Styles (see 2.2.1.1)	**A**	**B**	**D**
Signal contacts	41	82	164
Ground contacts	4	8	16



Installation options:

1 Rear of the backplane

2 Module side of the backplane

3 Front of the module

Figure 1 – Recommended installation

1.2 Ratings and characteristics

Proof voltage:	contact/ground > 750 V r.m.s. (according to table 15)		
Current rating:	2,1 A (grid 2,5 mm × 2,5 mm)		
(at 70 °C)	2,2 A (grid 2,5 mm × 5 mm “chess”)		
	2,7 A (grid 5 mm × 5 mm)		
Insulation resistance:	10^4 MΩ		
Climatic category:	PL1: 40/100/56 PL2: 40/100/21		
Printed board thickness:	Backplane 1,6 mm to 4,5 mm Plug-in unit 1,6 mm to 3,2 mm		
Metal-plated hole:	0,94 mm – 1,09 mm		
Contact gap:	2,5 mm × 2,5 mm		
Shielding effectiveness:	4 contacts/25 mm Style:	A (1 SU) : 10 dB	(at 300 MHz)
	(arrangement 4, table 7)	B (2 SU) : 14 dB	(at 300 MHz)
		D (4 SU) : 20 dB	(at 300 MHz)

1.3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61076. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61076 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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-21:1999, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60326-3:1991, *Printed boards – Part 3: Design and use of printed boards*

IEC 60352-1:1997, *Solderless connections – Part 1: Wrapped connections – General requirements, test methods and practical guidance*

IEC 60352-2:1990: *Solderless connections – Part 2: Solderless crimped connections – General requirements, test methods and practical guidance*
Amendment 1:1996

IEC 60352-3:1993, *Solderless connections – Part 3: Solderless accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-5:1995, *Solderless connections – Part 5: Solderless press-in connections – General requirements, test methods and practical guidance*

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

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

IEC 60512-1-100:2001, *Connectors for electronic equipment – Tests and measurements – Part 1-100: General – Applicable publications*

IEC 60917-1:1998, *Modular order for the development of mechanical structures for electronic equipment practices – Part 1: Generic standard*

IEC 60917-2-2:1994, *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 61076-1:1995, *Connectors with assessed quality for use in d.c., low-frequency analogue and digital high-speed data applications – Part 1: Generic specification*

IEC 61076-4:1995, *Connectors with assessed quality for use in d.c., low-frequency analogue and digital high-speed data applications – Part 4: Sectional specification – Printed board connectors*

IEC 61076-4-001:1996, *Connectors with assessed quality for use in d.c., low-frequency analogue and digital high-speed data applications – Part 4: Printed board connectors – Section 001: Blank detail specification*

IEC 61076-4-100:2001, *Connectors for electronic equipment – Part 4-100: Printed board connectors with assessed quality – Detail specification for two-part connector modules having a grid of 2,5 mm for printed boards and backplanes*

ISO 1302:1992, *Technical drawings – Method of indicating surface texture*

1.4 Marking

The marking of the connector and the package shall be in accordance with 2.6 of IEC 61076-4.

Marking examples (according to 1.5)

Fixed board connector

Style 4 SU male connector, male contacts equipped in “chess” pattern, press-in termination with rear plug-up cable connection, with ground contacts, surface of the signal and ground contacts gold-plated, meeting performance level 1 and assessment level G:

IEC 61076-4-108 – R088M – 24 – R1 – 1 – 1G

Free cable connector

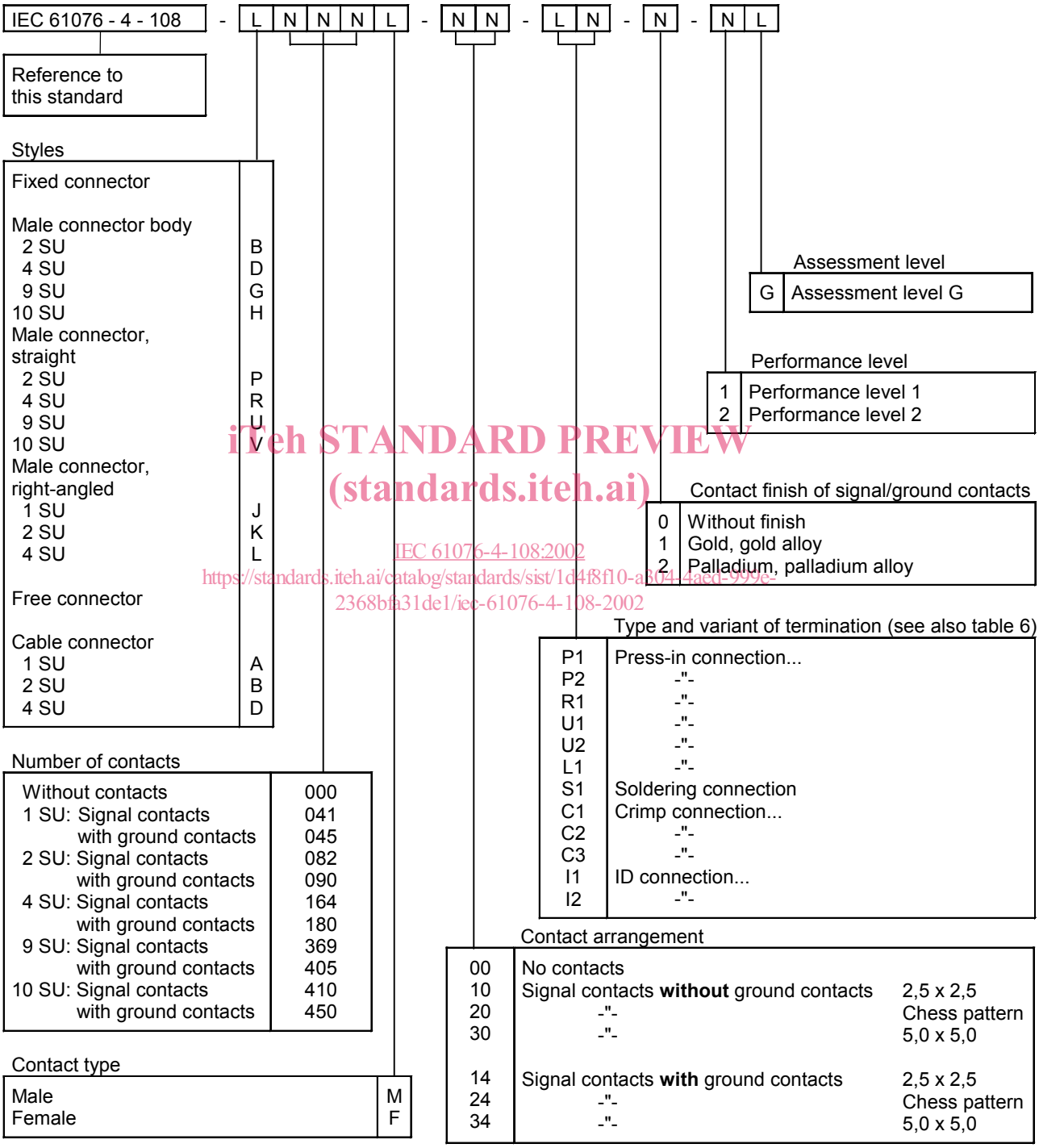
Style 1 SU, female contacts equipped in 2,5 mm × 2,5 mm grid pattern, without ground contacts, surface of the signal contacts palladium alloy, cable with solid conductors, with crimp termination (AWG 30 – 24), meeting performance level 2 and assessment level G:

IEC 61076-4-108 – A041F – 10 – C3 – 2 – 2G

1.5 IEC type designation

The designation of plug-in connectors shall be defined as follows in accordance with this standard:

L stands for letter, N stands for number.



1.6 Ordering information

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