

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Connectors for electronic equipment – Product requirements –
Part 3-114: Rectangular connectors – Detail specification for protective housings
for use with 8-way shielded and unshielded connectors for frequencies up to
600 MHz for industrial environments incorporating the IEC 60603-7 series
interface – Variant 11 related to IEC 61076-3-106 – Bayonet coupling type**

**Connecteurs pour équipements électroniques – Exigences de produit –
Partie 3-114: Connecteurs rectangulaires – Spécification particulière pour
boîtiers de protection utilisés avec des connecteurs blindés et non blindés
à 8 voies pour des fréquences inférieures ou égales à 600 MHz dans des
environnements industriels incorporant l'interface série CEI 60603-7 –
Variante 11 liée à la CEI 61076-3-106 – Type d'accouplement à baïonnette**



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INTERNATIONAL
ELECTROTECHNICAL
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ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

T

ICS 31.220.10

ISBN 978-2-88910-406-2

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRONIC EQUIPMENT –
PRODUCT REQUIREMENTS –****Part 3-114: Rectangular connectors – Detail specification for protective
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for frequencies up to 600 MHz for industrial environments
incorporating the IEC 60603-7 series interface –
Variant 11 related to IEC 61076-3-106 –
Bayonet coupling type**

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International Standard IEC 61076-3-114 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This International Standard cancels and replaces IEC/PAS 61076-3-114 (2005).

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

FDIS	Report on voting
48B/1995/FDIS	48B/2013/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.

A list of all parts of IEC 61076 series, under the general title *Connectors for electronic equipment – Product requirements*, can be found on the IEC website.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

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CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 3-114: Rectangular connectors – Detail specification for protective housings for use with 8-way shielded and unshielded connectors for frequencies up to 600 MHz for industrial environments incorporating the IEC 60603-7 series interface – Variant 11 related to IEC 61076-3-106 – Bayonet coupling type

1 General data

1.1 Scope

This part of IEC 61076 covers protective housings for upgrading existing 8-way shielded and unshielded connectors utilizing the interface described in IEC 60603-7-2, IEC 60603-7-3, IEC 60603-7-4, IEC 60603-7-5, and IEC 60603-7-7 to IP65 and IP67 ratings, according to IEC 60529, for use in industrial environments.

The housings cover a variety of different locking mechanisms and a variety of different mounting configurations and termination types which are detailed in IEC 60603-7.

Common mating configurations for all variants are defined in IEC 60603-7. The mating dimensions for the housings under Clause 3 allow the mating conditions according to IEC 60603-7 to be fulfilled.

The fully assembled variants (connectors) described in this standard incorporate fixed and free connectors which are fully compliant with IEC 60603-7.

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 60050-581:2008, *International Electrotechnical Vocabulary (IEV) – Part 581: Electromechanical components for electronic equipment*

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

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

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

IEC 60512-1-100, *Connectors for electronic equipment – Tests and measurements – Part 1-100: General – Applicable publications*²

² The various parts of IEC 60512 are listed in IEC 60512-1-100.

IEC 60529, *Degree of protection provided by enclosures (IP Code)*

IEC 60603-7, *Connectors for electronic equipment – Part 7: Detail specification for 8-way, unshielded free and fixed connectors*

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

IEC 60603-7-3, *Connectors for electronic equipment – Part 7-3: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 100 MHz*

IEC 60603-7-4, *Connectors for electronic equipment – Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors for data transmissions with frequencies up to 250 MHz*

IEC 60603-7-5, *Connectors for electronic equipment – Part 7-5: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz*

IEC 60603-7-7, *Connectors for electronic equipment – Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 600 MHz*

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

IEC 61076-1: 2006, *Connectors for electronic equipment – Product requirements – Part 1: Generic specification*

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

IEC 61156-2, *Multicore and symmetrical pair/quad cables for digital communications – Part 2: Horizontal floor wiring – Sectional specification*

IEC 61156-3, *Multicore and symmetrical pair/quad cables for digital communications – Part 3: Work area cable – Sectional specification*

IEC 61156-4, *Multicore and symmetrical pair/quad cables for digital communications – Part 4: Riser cables – Sectional specification*

2 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-581 apply.

3 Dimensional information

3.1 Common features

The connector housing for industrial environments referenced in this specification is composed of IEC 60603-7 fixed and free connectors. The mating information and contact requirements of the IEC 60603-7 interface portion of these connector housings for industrial environment shall be compliant with the relevant part of IEC 60603-7.

The following requirements apply to the complete connector comprised of both the free and fixed connectors in the described variant shells/outer housing.

3.2 General

Dimensions are given in millimetres drawings are shown in first-/third-angle projection. The shape of connectors may deviate from the shapes given in Figures 1 to 3, as long as the specified dimensions are not influenced.

3.3 Contact arrangement of all connector types

Contact arrangements shall be in accordance with the relevant IEC 60603-7 specifications.

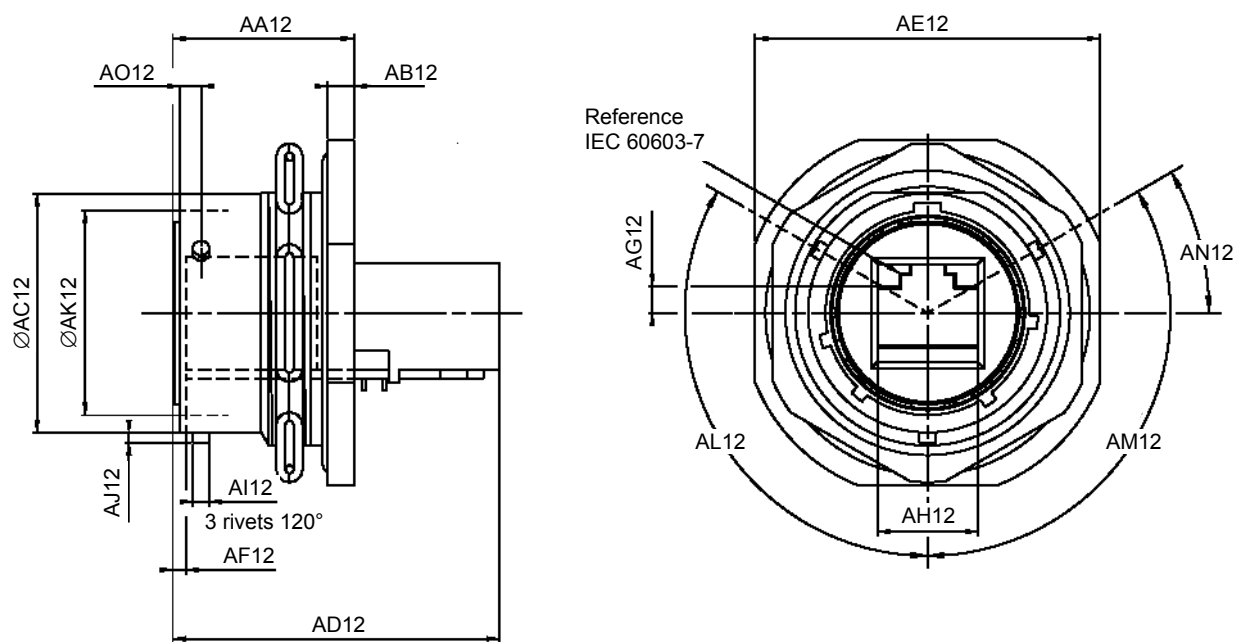
3.4 IP65 and IP67 sealing

Connectors meant to comply with IP ratings according to IEC 60529 require sealing of the components in order to meet the requirements detailed in the test schedules in 6.8.3 through 6.8.7.

3.5 Industrial IEC 60603-7 variant 11 – Bayonet coupling

3.5.1 Industrial IEC 60603-7 variant 11, fixed connectors

Third-angle projection.



NOTE 1 Also available with an IEC 60603-7-x plug cord set at the rear instead of the IEC 60603-7-x receptacle.

NOTE 2 The detail of the keyways is described in the MIL-DTL-26486H series I page 21.

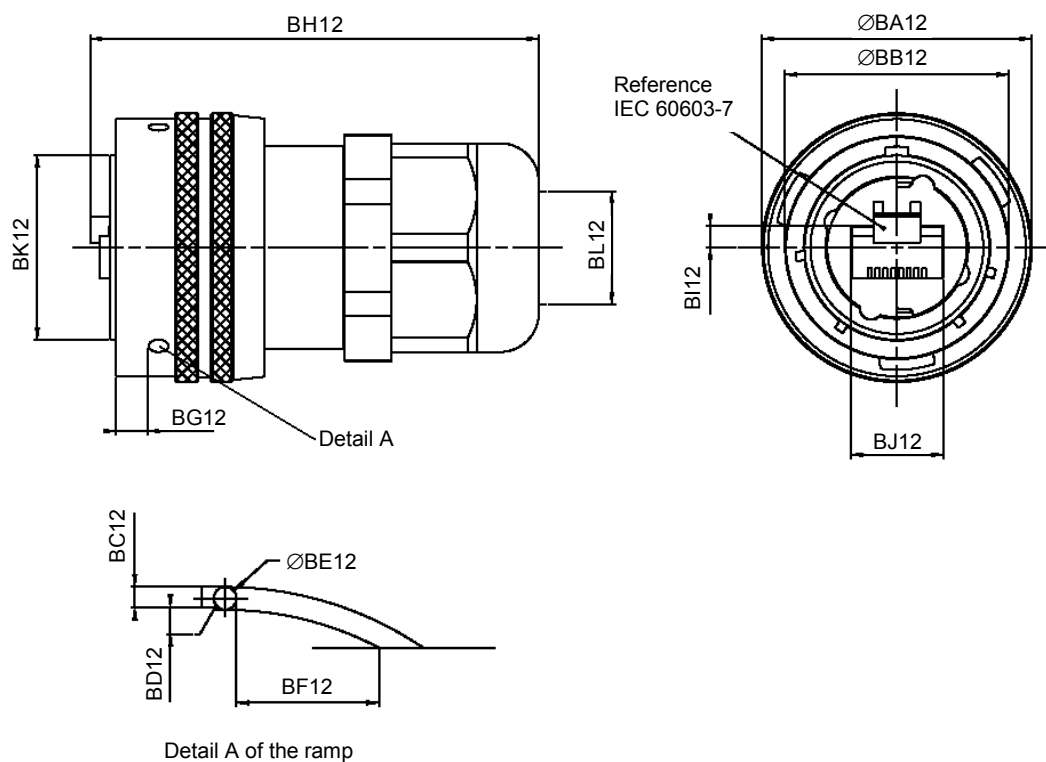
NOTE 3 The detail of the sealing is described in the MIL-DTL-26482H series I page 17.

Figure 1 – Variant 11, fixed connector

Table 1 – Dimensions of fixed connector, variant 11

Letter	Maximum	Minimum	Nominal
	mm	mm	mm
AA12	21,75	21,65	21,7
AB12	3,25	3,15	3,2
AC12	28,6	28,56	28,58
AD12	39,2	39	39,1
AE12	41,35	41,25	41,3
AF12	1,58	1,52	1,55
AG12	3,2	3	3,1
AH12	12,03	11,78	11,91
AI12	2,05	1,95	2
AJ12	1,4	1,3	1,35
AK12	24,55	24,45	24,5
AL12	122°	118°	120°
AM12	122°	118°	120°
AN12	32°	28°	30°
AO12	2,615	2,465	2,54

3.5.2 Industrial IEC 60603-7 variant 11, free connectors



NOTE This protective housing can be used with any standard IEC 60603-7 cord set.

Figure 2 – Variant 11, free connector

Table 2 – Dimensions of free connector, variant 11

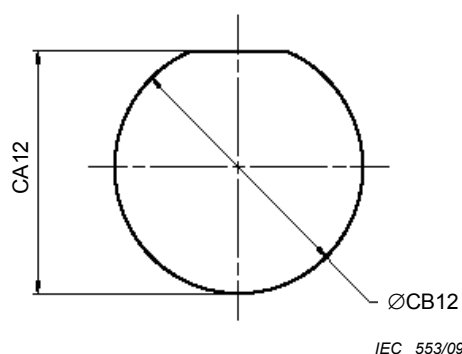
Letter	Maximum	Minimum	Nominal
	mm	mm	mm
BA12	34,81	34,71	34,76
BB12	28,98	28,85	28,91
BC12	2,67	2,29	2,48
BD12	0,33	0,23	0,28
BE12	2,92	2,54	2,73
BF12	81	79	80
BG12	4,29	4,19	4,24
BH12	58	57,6	57,8
BI12	2,9	2,8	2,85
BJ12	11,78	11,58	11,68
BK12	23,95	23,85	23,9
BL12 (cable)	12	5	8,5

3.6 Termination and mounting information

3.7 General

Terminations shall be according to IEC 60603-7-2, IEC 60603-7-3, IEC 60603-7-4, IEC 60603-7-5, or IEC 60603-7-7.

3.8 Mounting information for variant 11, fixed connector

**Figure 3 – Variant 11 mounting****Table 3 – Mounting information**

Letter	Maximum	Minimum	Nominal
	mm	mm	mm
CA12	30,70	30,40	30,55
CB12	32,3	32	32,15

3.9 Cap for fixed connector

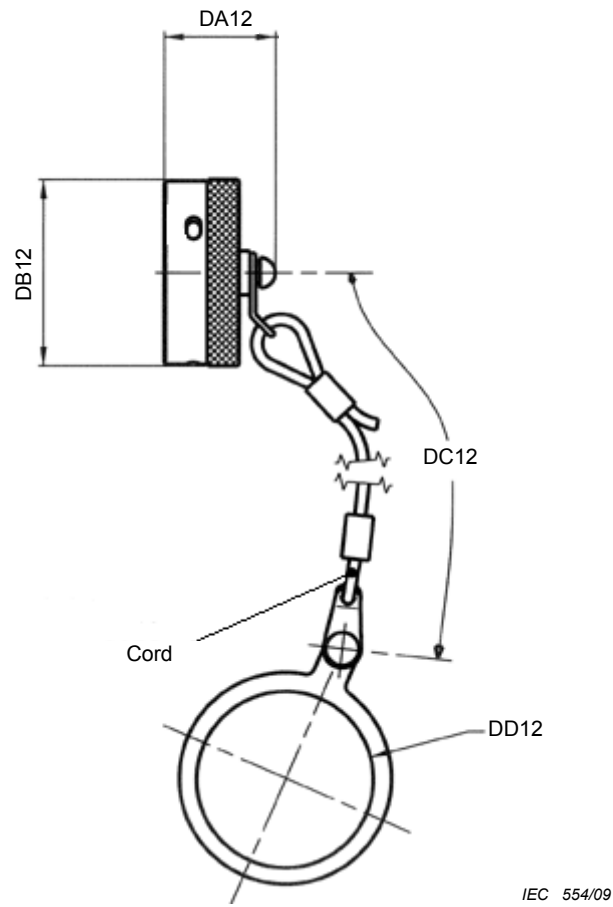


Figure 4 – Variant 11 cap for fixed connector

Table 4 – Dimensions of cap for fixed connector, variant 11

Letter	Maximum	Minimum	Nominal
	mm	mm	mm
DA12	21	17	19
DB12	36	32	34
DC12	105	75	90
DD12	34	32	33

3.10 Cap for free connector

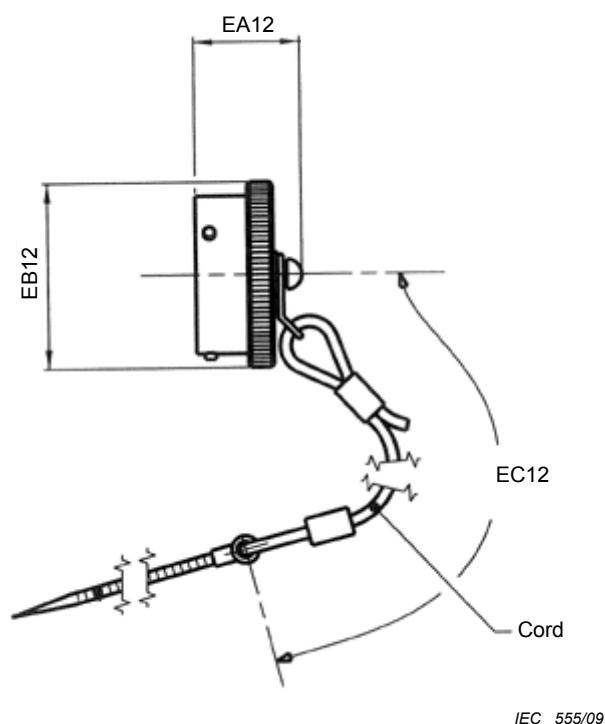


Figure 5 – Variant 11 cap for free connector

Table 5 – Dimensions of cap for free connector, variant 11

Letter	Maximum	Minimum	Nominal
	mm	mm	mm
EA12	21,2	17,2	19,2
EB12	32,6	34,6	33,6
EC12	140	180	160

4 Gauges

4.1 Connectors, IEC 60603-7 interface

Refer to the relevant IEC 60603-7 specifications.

5 Characteristics

5.1 Climatic category

The lowest and highest temperatures and the duration of the damp-heat steady-state test should be selected from the preferred values stated in 2.3 of IEC 61076-1 and shall not exceed the values defined in the relevant IEC 60603-7 specification.

The following preferred temperature range and severity of the damp-heat steady-state test have been selected to comply with IEC 61156 (see Table 6).

**Table 6 – Climatic categories –
Selected values for environmental performance level A**

Climatic category	Lower temperature °C	Upper temperature °C	Damp heat steady state (days)
40/70/21	–40	70	21

5.2 Electrical

5.2.1 Clearance and creepage distances

The permissible operating voltages depend on the application and on the applicable or specified safety requirements (see Table 7).

Insulation coordination is not required for this connector; therefore, the creepage and clearance distances in IEC 60664-1 are reduced and covered by overall performance requirements.

Therefore, the creepage and clearance distances are given as operating characteristics of mated connectors.

In practice, reductions in creepage or clearance distances may occur due to the conductive pattern of the printed board or the wiring used and shall duly be taken into account.

Table 7 – Creepage and clearance distances

Type	Distance between contacts and shield		Minimum distance between adjacent contacts	
	Creepage mm	Clearance mm	Creepage mm	Clearance mm
A, B	1,40	0,51	0,36	0,36

The electrical characteristics are specified in the relevant part of IEC 60603-7.

5.2.2 Voltage proof

Conditions: IEC 60512, Test 4a, Method A

Standard atmospheric conditions

Mated connectors

All variants: 1 000 V d.c. or a.c. peak, one contact to all other contacts connected together,
1 500 V d.c. or a.c. peak, all contacts connected together to shield,
((housing/mounting plate) if present).

5.2.3 Current-derating diagram

Conditions: IEC 60512, Test 5b

All contacts, connected in series

The current carrying capacity of connectors in accordance with the requirements of 2.5 of IEC 61076-1 shall comply with the de-rating diagram given in Figure 6.