

Radio-frequency connectors

Part 14: R.F. coaxial connectors with inner diameter of outer conductor 12 mm with screw coupling — Characteristic impedance 75 ohms (Type 3,5/12)

National foreword

This British Standard is the UK implementation of EN 61169-14:2010. It is identical to IEC 61169-14:2010.

The UK participation in its preparation was entrusted to Technical Committee EPL/46, Cables, wires and waveguides, radio frequency connectors and accessories for communication and signalling.

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

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EN 61169-14

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English version

**Radio-frequency connectors -
Part 14: R.F. coaxial connectors with inner diameter of outer conductor 12
mm with screw coupling -
Characteristic impedance 75 ohms (Type 3,5/12)
(IEC 61169-14:2010)**

Connecteurs pour fréquences
radioélectriques -
Partie 14: Connecteurs coaxiaux pour
fréquences de diamètre intérieur du
conducteur extérieur de 12 mm à
verrouillage à vis -
Impédance caractéristique 75 ohms (Type
3,5/12)
(CEI 61169-14:2010)

Hochfrequenz-Steckverbinder -
Teil 14: Koaxiale HF-Steckverbinder mit
12 mm Innendurchmesser des
Außenleiters mit Schraubverbindung -
Wellenwiderstand 75 Ohm (Typ 3,5/12)
(IEC 61169-14:2010)

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CENELEC

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

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Foreword

The text of document 46F/148/CDV, future edition 1 of IEC 61169-14, prepared by IEC/SC 46F, R.F. and microwave passive components, of IEC TC 46, Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61169-14 on 2010-12-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) | 2011-09-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2013-12-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61169-14:2010 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>
IEC 61169-1	1992	Radio-frequency connectors -	EN 61169-1	1994
+ A1	1996	Part 1: Generic specification - General	+ A1	1996
+ A2	1997	requirements and measuring methods	+ A2	1997

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RADIO-FREQUENCY CONNECTORS –

Part 14: R.F. coaxial connectors with inner diameter of outer conductor 12 mm with screw coupling – Characteristic impedance 75 ohms (Type 3,5/12)

1 Scope

This standard concerns RF coaxial connectors for use with RF cables both flexible and semi-rigid, where air dielectric interface and high mechanical stability is required for severe environmental exposure. The connectors provide low reflection in the microwave region up to 12 GHz and all patterns may provide sealing up to a pressure differential of 3 bar.

For this type of connector, cables IEC 75-7 and 75-8 of IEC 61196-6: *Coaxial communication cables – Part 6: Sectional specification for CATV drop cables*, are recommended.

This type is known commercially as the 3,5/12 connector.

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 61169-1:1992, *Radio-frequency connectors – Part 1: Generic specification – General requirements and measuring methods*¹
Amendment 1 (1996)
Amendment 2 (1997)

3 IEC type designation

Connectors conforming to this standard shall be designated by:

- a) the reference to this standard: 61169-14 IEC;
- b) number of the grade:
 - Grade 0 = standard test connector = G0
 - Grade 1 = high performance connector = G1
 - Grade 2 = general purpose connector
 - if Grade 2 is required, no grade designation is necessary;
- c) a serial number (see Clause 7);
- d) a group of figures specifying the climatic category (see Clause 4).

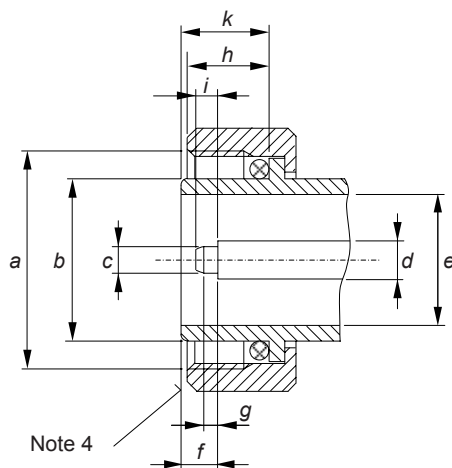
Example

61169-14 IEC-G1-1 (40/85/21) denotes a free pin Grade 1 high performance connector (straight) for cable 96-2 IEC 75-7-1/2/8 with mating face as indicated in Clause 5 of this standard with a reflection coefficient not greater than 0,06 at frequencies up to 6 GHz belonging to climatic category 40/85/21.

¹ There exists a consolidated edition 1.2 (1998) that comprises IEC 61169-1:1992, its Amendment 1:1996 and its Amendment 2:1997.

4 Mating face for general purpose connector

4.1 Connector with pin centre contact (see Figure 1)



IEC 1983/10

**Figure 1 – Connector with pin centre contact
(for dimensions, see Table 1)**

Table 1 – Dimensions for connector with pin centre contact

Ref.	mm		Note
	Min.	Max.	
<i>a</i>	M 20 × 1		2
<i>b</i>	14,84	14,95	
<i>c</i>	2,855	2,945	
<i>d</i>	3,5 ref		1/3
<i>e</i>	12,0 ref		1/3
<i>f</i>	2,51	2,7	6
<i>g</i>	1,8	–	
<i>h</i>	7	9	
<i>i</i>	2,2	2,7	
<i>k</i>	8	–	5

NOTE 1 The tolerance on this dimension is determined by the tolerance of characteristic impedance. (For Grade 1 connector, the characteristic impedance should be $75 \Omega \pm 0,38 \Omega$).

NOTE 2 M 20 × 1 indicates metric ISO screw-thread with nominal diameter 20 mm and pitch 1 mm.

NOTE 3 Reference dimensions.

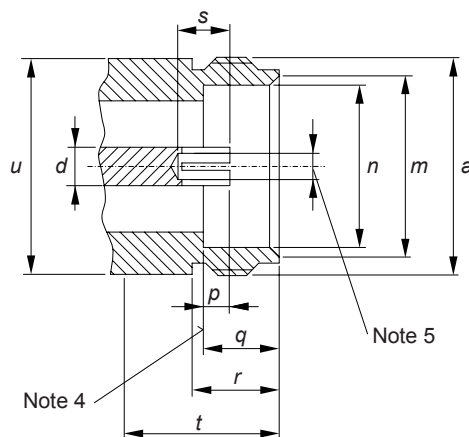
NOTE 4 Mechanical and electrical reference plane.

NOTE 5 This dimension together with O-ring gasket to meet environmental requirements.

NOTE 6 For Grade 1 connectors: dimension *f*:
2,51 mm min.
2,6 mm max.

NOTE 7 All undimensioned pictorial configurations are for reference purposes only.

4.2 Connector with socket centre contact (see Figure 2)



IEC 1984/10

**Figure 2 – Connector with socket centre contact
(for dimensions, see Table 2)**

Table 2 – Dimensions for connector with socket centre contact

Ref.	mm		Note
	Min.	Max.	
<i>a</i>	M 20 × 1		2
<i>d</i>	3,5 ref.		1/3
<i>m</i>	15,5	16,0	
<i>n</i>	15,0	15,1	
<i>p</i>	2,3	2,49	6
<i>q</i>	6,9	7,1	
<i>r</i>	9,0	11	
<i>s</i>	4,5	–	
<i>t</i>	15,5	–	
<i>u</i>	19,7	20,2	

NOTE 1 The tolerance on this dimension is determined by the tolerance of characteristic impedance. (For Grade 1 connector the characteristic impedance should be $75 \Omega \pm 0,38 \Omega$).

NOTE 2 M 20 × 1 indicates metric ISO screw-thread with nominal diameter 20 mm and pitch 1 mm.

NOTE 3 Reference dimension.

NOTE 4 Mechanical and electrical reference plane.

NOTE 5 Bore diameter and slots to meet gauge requirements.

NOTE 6 For Grade 1 connectors:
dimension *p*: 2,4 mm min.
2,49 mm max.

NOTE 7 All undimensioned pictorial configurations are for reference purposes only.