

BS EN 61169-48:2015



BSI Standards Publication

Radio-frequency connectors

Part 48: Sectional specification for series
BMP R.F. coaxial connectors

bsi.

...making excellence a habit.
AVA Documents™
Document Sharing Hub

National foreword

This British Standard is the UK implementation of EN 61169-48:2015. It is identical to IEC 61169-48:2014.

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.

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

© The British Standards Institution 2015.
Published by BSI Standards Limited 2015

ISBN 978 0 580 82917 8
ICS 33.120.30

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2015.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61169-48

March 2015

ICS 33.120.30

English Version

**Radio-frequency connectors - Part 48: Sectional specification for
series BMP R.F. coaxial connectors
(IEC 61169-48:2014)**

Connecteurs pour fréquences radioélectriques - Partie 48:
Spécification intermédiaire relative aux connecteurs
coaxiaux R.F. série BMP
(IEC 61169-48:2014)

Hochfrequenz-Steckverbinder - Teil 48:
Rahmenspezifikation für koaxiale HF Steckverbinder der
BMP-Serie
(IEC 61169-48:2014)

This European Standard was approved by CENELEC on 2014-11-27. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2015 CENELEC All rights of exploitation in any form and by any means reserved worldwide for CENELEC Members.

Foreword

The text of document 46F/253/CDV, future edition 1 of IEC 61169-48, prepared by 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 approved by CENELEC as EN 61169-48:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-09-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-11-27

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

Endorsement notice

The text of the International Standard IEC 61169-48:2014 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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 61169-1	2013	Radio-frequency connectors - Part 1: Generic specification - General requirements and measuring methods	EN 61169-1	2013
IEC 62037	series	Passive RF and microwave devices, intermodulation level measurement	EN 62037	series

CONTENTS

1	Scope	6
2	Normative references	6
3	Mating face and gauge information	6
3.1	Dimensions – General connectors – Grade 2	6
3.1.1	Connector with pin-centre contact – Full detent and smooth bore	6
3.1.2	Connector with socket-centre contact	7
3.2	Gauges	8
3.2.1	Gauge pin for socket-centre contact	8
3.2.2	Test procedure	9
3.2.3	Gauge for outer contact of connector with pin-centre contact	10
3.3	Dimensions – Standard test connectors – Grade 0	12
3.3.1	Connector with pin-centre contact	12
3.3.2	Connector with socket-centre contact	13
3.4	General requirements for connector mounting on PCB	14
3.4.1	General	14
3.4.2	Maximum permitting deflexion	15
3.4.3	Maximum permitting axial clearance	15
4	Quality assessment procedure	15
4.1	General	15
4.2	Rating and characteristics (see Clause 5 of IEC 61169-1:2013)	15
4.3	Test schedule and inspection requirements – Acceptance tests	18
4.3.1	Acceptance tests	18
4.3.2	Periodic tests	19
4.4	Procedures for the quality conformance	20
4.4.1	Quality conformance inspection	20
4.4.2	Quality conformance and its maintenance – General procedure	20
5	Instructions for preparation of detail specifications	20
5.1	General	20
5.2	Identification of the component	21
5.3	Performance	21
5.4	Marking, ordering information and related matters	21
5.5	Selection of tests, test conditions and severities	21
5.6	Blank detail specification pro-forma for type BMP connector	22
6	Marking	27
6.1	Marking of component	27
6.2	Marking and contents of package	27
	Figure 1 – Connector with pin-centre contact	7
	Figure 2 – Connector with socket-centre contact	8
	Figure 3 – Gauge pin for socket-centre contact	9
	Figure 4 – Gauge A for sizing test	10
	Figure 5 – Gauge B for retention test for pin connectors – Full detent	11
	Figure 6 – Gauge C for retention test for pin connectors – Smooth bore	12
	Figure 7 – Connector with pin-centre contact	13

Figure 8 – Connector with socket-centre contact.....	14
Figure 9 – General requirements for connector mounting on PCB	15
Table 1 – Dimensions of connector with pin-centre contact.....	7
Table 2 – Dimensions of connector with socket-centre contact.....	8
Table 3 – Dimensions of gauge pin for socket-centre contact.....	9
Table 4 – Gauge A for sizing test	10
Table 5 – Gauge B for retention test for pin connectors – Full detent	11
Table 6 – Gauge C for retention test for pin connectors – Smooth bore.....	12
Table 7 – Dimensions of connector with pin-centre contact	13
Table 8 – Dimensions of connector with socket-centre contact.....	14
Table 9 – Preferred climatic categories (see IEC 60068-1).....	16
Table 10 – Rating and characteristics	16
Table 11 – Acceptance tests	19
Table 12 – Periodic tests	19

RADIO-FREQUENCY CONNECTORS –

Part 48: Sectional specification for series BMP R.F. coaxial connectors

1 Scope

This part of IEC 61169, which is a sectional specification (SS), provides information and rules for the preparation of detail specifications (DS) for series BMP RF coaxial connectors with blind mating, typically for use in 50 Ω board to board connection. They may also be used with RF cables or micro-strips in microwave, telecommunication, wireless and other fields. Their operating frequency limit is up to 6 GHz.

It describes the interface dimensions with gauging information, electrical and mechanical performance including the mandatory tests selected from IEC 61169-1:2013 applicable to all DS relating to type BMP connectors.

This specification indicates the recommended performance characteristics to be considered when writing a DS and covers test schedules and inspection requirements.

NOTE Metric dimension are original dimensions.

All undimensioned pictorial configurations are for reference purpose only.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61169-1:2013, *Radio-frequency connectors – Part 1: Generic specification – General requirements and measuring methods*

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

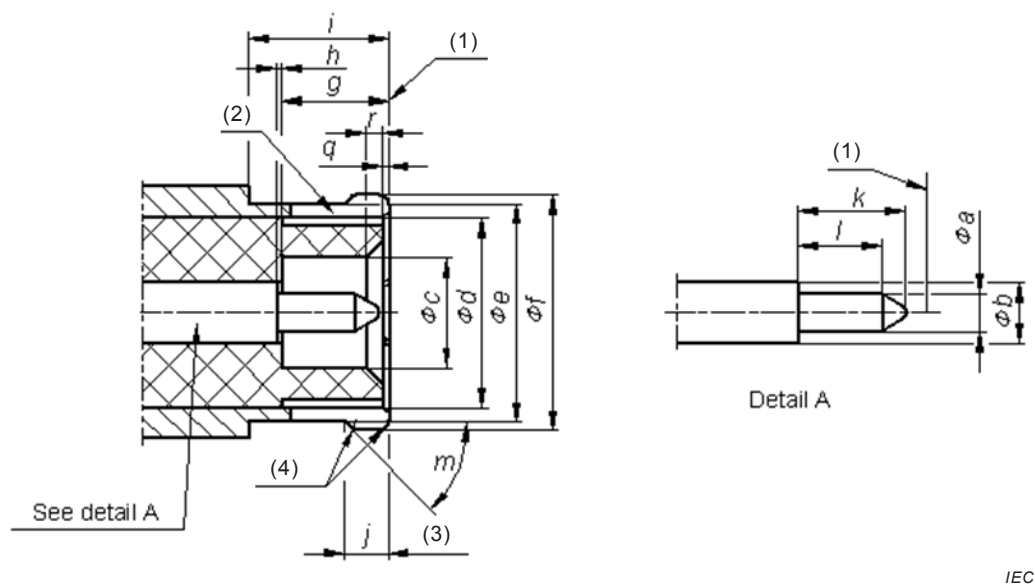
IEC 62037 (all parts), *Passive RF and microwave devices, intermodulation level measurement*

3 Mating face and gauge information

3.1 Dimensions – General connectors – Grade 2

3.1.1 Connector with pin-centre contact – Full detent and smooth bore

The mating face of connector with pin-centre contact is shown in Figure 1 and its dimensions are shown in Table 1.



IEC

- (1) Mechanical and electrical reference plane.
 (2) The slots shall meet mechanical and electrical requirements.
 (3) The shape and size of outer conductor shall meet the electrical and mechanical performance requirements.
 (4) $R0,2$ recommended for fillet.

Figure 1 – Connector with pin-centre contact

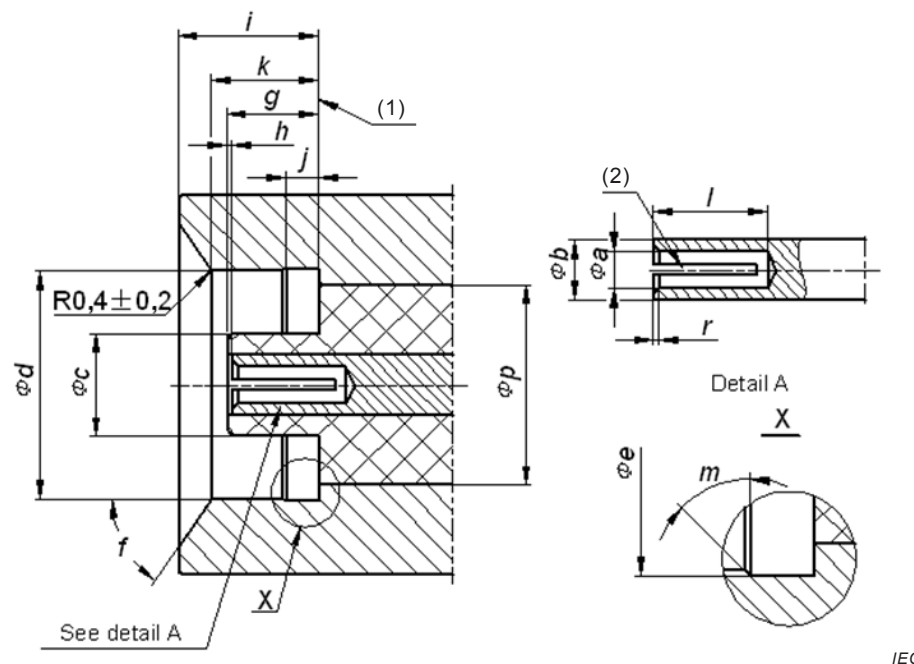
Table 1 – Dimensions of connector with pin-centre contact

Ref.	mm		Additional notes
	Min.	Max.	
a	0,68	0,71	
b	1,05	1,10	
c	2,30	2,50	
d ^a	–	–	
e	4,14	4,18	
f	4,52	4,57	Full detent
	4,23	4,28	Smooth bore
g	1,77	2,02	
h	0,00	0,25	
i	2,62	–	
j	0,42	0,52	Full detent
	1,00	1,20	Smooth bore
k	1,65	1,80	
l	1,18	1,28	
m	$45^\circ \pm 2^\circ$		Angle
q	0,00	0,15	
r	$0,3 \pm 0,1 \times 45^\circ$		Chamfer

^a The diameter is chosen upon the assumption that the PTFE dielectric has a dielectric constant of 2,02 to give an impedance of 50 Ω .

3.1.2 Connector with socket-centre contact

The mating face of connector with socket-centre contact is shown in Figure 2 and its dimensions are shown in Table 2.



IEC

(1) Mechanical and electrical reference plane.

(2) Slotted and closed to meet electrical and mechanical requirements.

Figure 2 – Connector with socket-centre contact**Table 2 – Dimensions of connector with socket-centre contact**

Ref.	mm		Additional notes
	Min.	Max.	
<i>a</i> ^a	–	–	
<i>b</i>	1,05	1,10	
<i>c</i>	1,85	1,95	
<i>d</i>	4,17	4,21	
<i>e</i>	4,39	4,44	
<i>f</i>	55° ± 2°		
<i>g</i>	1,63	1,83	
<i>h</i>	0,00	0,15	
<i>i</i>	2,10	–	
<i>j</i>	0,60	0,72	
<i>k</i>	1,80	1,90	
<i>l</i>	2,10	2,30	
<i>m</i>	45° ± 2°		Angle
<i>p</i> ^b	–	–	
<i>r</i>	0,15 ± 0,05 × 45°		Chamfer
^a Dimensions are chosen to meet mechanical performance requirements, when mating with Φ0,68 mm~Φ0,71 mm pin.			
^b The diameter is chosen upon the assumption that the PTFE dielectric has a dielectric constant of 2,02 to give an impedance of 50 Ω.			

3.2 Gauges

3.2.1 Gauge pin for socket-centre contact

The gauge pin for socket-centre contact is shown in Figure 3 and its dimensions are shown in Table 3.