

Radio-frequency connectors —

**Part 21: Two types of radio-frequency
connectors with inner diameter of outer
conductor 9,5 mm (0,374 in) with
different versions of screw coupling —
Characteristic impedance 50 ohms
(Types SC-A and SC-B)**

The European Standard EN 60169-21:1997 has the status of a
British Standard

ICS 33.120.30

National foreword

This British Standard is the English language version of EN 60169-21:1997. It is identical with IEC 60169-21:1985, including Amendment 1:1996.

The UK participation in its preparation was entrusted by Technical Committee EPL/46, Cables, wires and waveguides, r.f. connectors and accessories for communication and signalling, to Subcommittee EPL/46/2, Connectors and waveguides, 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.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

Attention is drawn to the fact that CEN and CENELEC standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement these international or European publications may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their 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, pages i and ii, the EN title page, pages 2 to 22 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on 15 December 1997

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English version

Radio-frequency connectors
Part 21: Two types of radio-frequency connectors with
inner diameter of outer conductor 9,5 mm (0,374 in)
with different versions of screw coupling
Characteristic impedance 50 ohms (types SC-A and SC-B)

(IEC 60169-21:1985 + A1:1996)

Connecteurs pour fréquences radioélectriques
Partie 21: Deux types de connecteurs pour
fréquences radioélectriques avec diamètre
intérieur du conducteur extérieur
de 9,5 mm (0,374 in) avec différentes versions
du système de verrouillage à vis
Impédance caractéristique 50 ohms
(types SC-A et SC-B)
(IEC 60169-21:1985 + A1:1996)

Hochfrequenz-Steckverbinder
Teil 21: Zwei Typen von
Hochfrequenz-Steckverbindern mit einem
inneren Durchmesser des
Außenleiters von 9,5 mm mit verschiedenen
Ausführungsarten der Schraubfesthaltung
Wellenwiderstand 50 Ohm
(Typen SC-A und SC-B)
(IEC 60169-21:1985 + A1:1996)

This European Standard was approved by CENELEC on 1997-07-01. 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, 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 the International Standard IEC 60169-21:1985 and its amendment A1:1996, prepared by SC 46D, RF connectors, of IEC TC 46, Cables, wires, waveguides, R.F. connectors, and accessories for communication and signalling, was submitted to the formal vote and was approved by CENELEC as EN 60169-21 on 1997-07-01 without any modification.

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) 1998-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-06-01

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, Annex ZA is normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60169-21:1985 and its amendment A1:1996 was approved by CENELEC as a European Standard without any modification.

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1 Scope

This specification standardizes the interface and ratings of two versions of a medium size r.f. connector for use with flexible and semi-rigid cables. The connectors are recommended to be utilized in medium power and low reflection applications up to 11 GHz. The dielectric filled interface is especially beneficial in applications involving severe environmental exposure.

Both versions of this connector type are screw coupled versions of the Type C connector covered by IEC Publication 169-7: Radio-frequency Connectors, Part 7: R.F. Coaxial Connectors with Inner Diameter of Outer Conductor 9.5 mm (0.374 in) with Bayonet Lock—Characteristic Impedance 50 ohms (type C). In this standard, they are considered as two different types and are distinguished by the designations 169-21A respectively 169-21B. Type 169-21A (SC-A) is the older version connector which is still preferred in Europe. Type 169-21B (SC-B) is the newer American design. Both connector types originated in the United States of America.

The two types are not intermateable. It is recommended to use only the type 169-21B (SC-B) in new installations.

2 IEC type designation

Connectors conforming to this standard shall be designated by:

- a) the reference to this standard: 169-21A IEC respectively 169-21B IEC;
- b) number of the grade:
 - Grade 0 = standard test connector = G0,
 - Grade 1 = high performance connector = G1,
 - Grade 2 = general purpose connector = G2 or no designation at all;
- c) a group of figures specifying the climatic category (see Clause 4).

Example:

169-21B IEC G1 (40/85/21) denotes a connector of grade 1, with coupling details as indicated in Figure 2 and Figure 5, pages 4 and 7, climatic category 40/85/21.

3 Ratings

The r.f. connectors standardized in this publication are designed for use with a variety of coaxial cables, semi-rigid and rigid coaxial lines, and a connector of grade 1 will not, under optimum conditions, introduce a reflection factor greater than 0.1 at frequencies up to 11 GHz.

Voltage:

Application	Sea level	Pressure 44.76 mbar
Working (d.c. or a.c peak)	1.5 kV	350 V
Proof	3 kV	750 V

Current: 6.0 A d.c. maximum.

4 Climatic categories

Category ^a	Temperature range	Damp heat, long term
40/85/21	– 40 °C to + 85 °C	21 days
55/155/56	– 55 °C to + 155 °C	56 days
^a To be included in the IEC type designation (see Clause 2).		

5 Dimensions — Connecteurs d'usage général

Les dimensions en inches sont les dimensions d'origine.

5.1 Connecteur avec contact central mâle

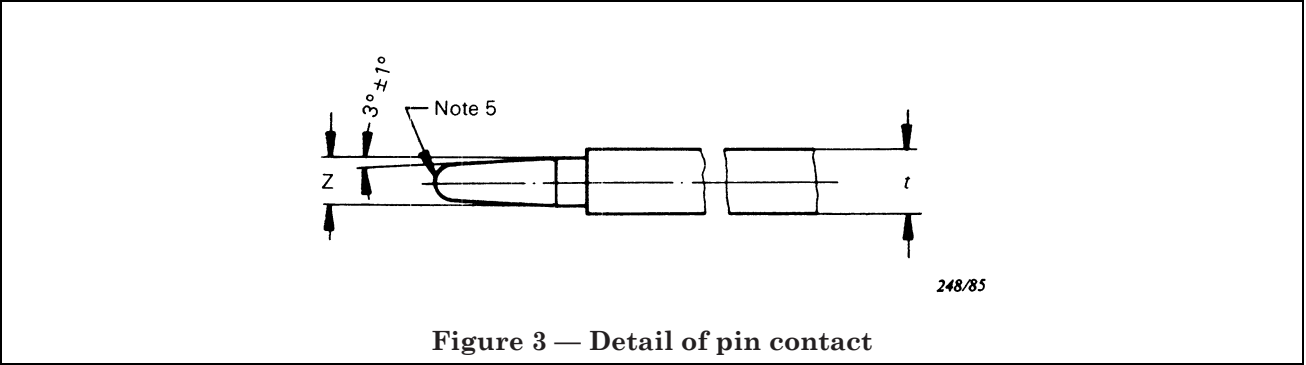
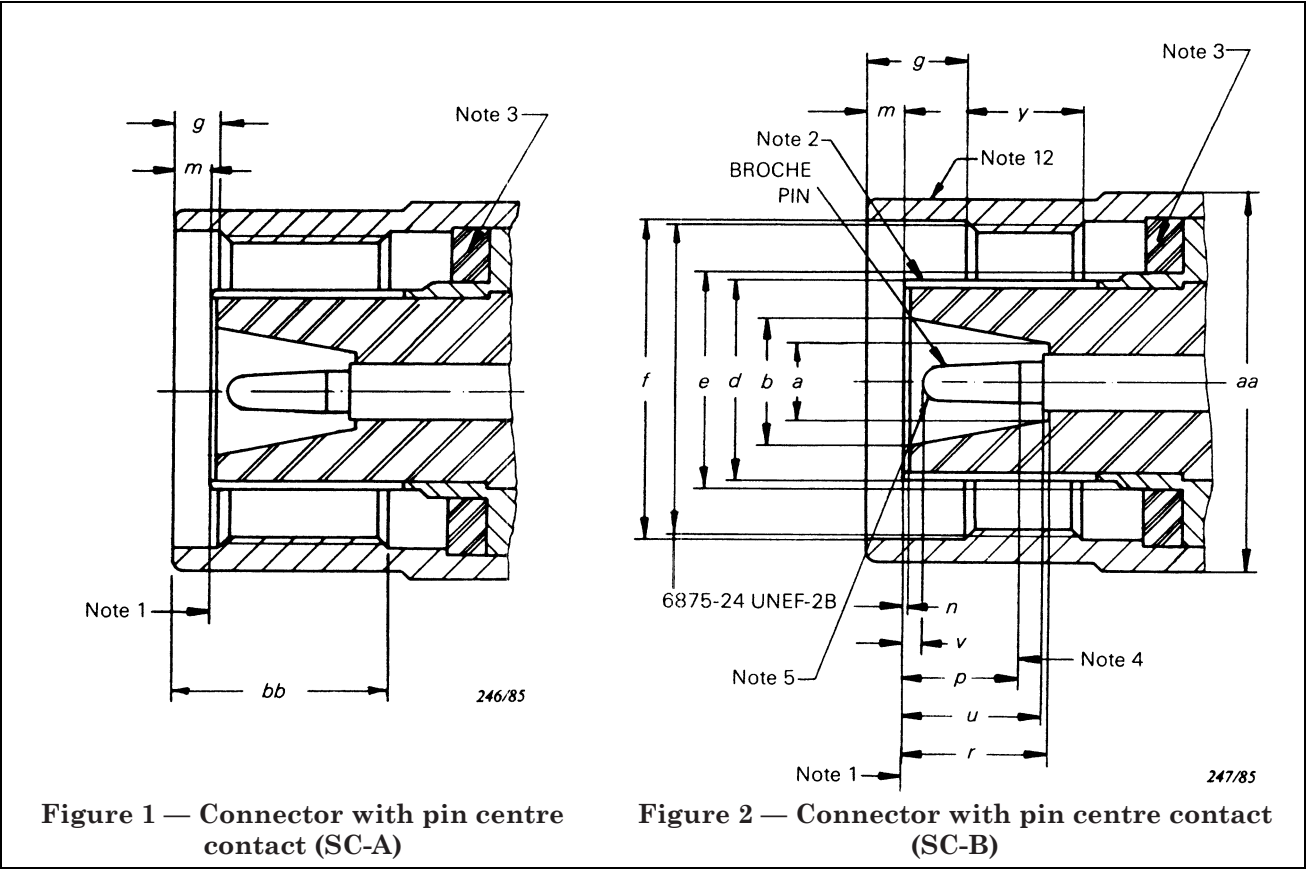
Ces dimensions sont applicables à des connecteurs pour des applications d'usage général micro-ondes.

5 Dimensions — General purpose connectors

Inch dimensions are original dimensions.

5.1 Connector with pin centre contact

These dimensions are for connectors for general purpose microwave applications.



Dimensions for Figure 2 and Figure 3 common to both connectors

Figure 2 and Figure 3 Ref.	mm		inch		Note
	Min.	Max.	Min.	Max.	
<i>a</i>	4,93	—	0,194	—	diam.
<i>b</i>	7,01	—	0,276	—	diam.
<i>d</i>	—	—	—	—	2/diam.
<i>e</i>	—	12,12	—	0,477	diam.
<i>f</i>	17,53	—	0,690	—	diam.
<i>n</i>	0,18	—	0,007	—	
<i>p</i>	4,85	6,38	0,191	0,251	4
<i>r</i>	7,85	—	0,309	—	
<i>t</i>	3,02	3,15	0,119	0,124	10/diam.
<i>u</i>	7,80	8,56	0,307	0,337	
<i>v</i>	0,08	1,02	0,003	0,040	
<i>z</i>	2,29	2,34	0,090	0,092	diam.
<i>aa</i>	—	21,03	—	0,828	diam.

Dimensions for connector Type 169-21A (SC-A) only, Figure 1

Figure 1 Ref.	mm		inch		Note
	Min.	Max.	Min.	Max.	
<i>g</i>	0,51	1,52	0,020	0,060	
<i>m</i>	0,51	2,16	0,020	0,085	6
<i>bb</i>	8,4	—	0,33	—	