

Connectors for frequencies below 3 MHz —

Part 9: Circular connectors for radio and associated sound equipment

The European Standard EN 60130-9:1995, with the incorporation of amendment A2:1997, has the status of a British Standard

ICS 31.220.10

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee EPL/48, Electromechanical components for electronic equipment, to Subcommittee EPL/48/2, Connectors for electronic equipment, upon which the following bodies were represented:

- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
- British Telecommunications plc
- BSI Quality Assurance
- Federation of the Electronics Industry
- Ministry of Defence
- Premises Cabling Association

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 April 1997

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The following BSI references relate to the work on this standard:
Committee reference EPL/48/2
Announced in *BSI Update*
February 1997

ISBN 0 580 27330 X

Amendments issued since publication

Amd. No.	Date	Comments
9859	April 1998	Includes data sheets 103-9 IEC-30 and 130-9 IEC-31

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National foreword

This Part of BS EN 60130 has been prepared by Subcommittee EPL/48/2, and is the English language version of EN 60130-9:1995 *Connectors for frequencies below 3 MHz — Part 9: Circular connectors for radio and associated sound equipment*, including amendment A2:1997, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 130-9:1989, including Amendment 1:1993 and Amendment 2:1995, published by the International Electrotechnical Commission (IEC).

Cross-references

Publication referred to	Corresponding British Standard
EN 60065:1993 (IEC 65:1985)	BS EN 60065:1994 <i>Safety requirements for mains operated electronic and related apparatus for household and similar general use</i>
HD 483.11 S3:1993 (IEC 268-11:1987)	BS 6840 <i>Sound system equipment</i> Part 11:1994 <i>Specification for application of connectors for the interconnection of sound system components</i>

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 86, an inside back cover 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.

ICS 31.220.10

Descriptors: Circular connectors for radio and sound equipment

English version

Connectors for frequencies below 3 MHz Part 9: Circular connectors for radio and associated sound equipment

(including amendment A2:1997)
(IEC 130-9:1989 + A1:1993 + A2:1995)

Connecteurs utilisés aux fréquences
jusqu'à 3 MHz
Partie 9: Connecteurs circulaires pour
appareils de radiodiffusion et équipements
électroacoustiques associés
(inclut l'amendement A2:1997)
(CEI 130-9:1989 + A1:1993 + A2:1995)

Steckverbinder für Frequenzen unter 3 MHz
Teil 9: Rundsteckverbinder für Rundfunk- und
verwandte elektroakustische Geräte
(enthält Änderung A2:1997)
(IEC 130-9:1989 + A1:1993 + A2:1995)

This European Standard was approved by CENELEC on 1995-03-06; amendment A2 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.

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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

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Ref. No. EN 60130-9:1995 + A2:1997 E
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Foreword

The text of the International Standard IEC 130-9:1989 and its amendment 1:1993, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the formal vote and was approved by CENELEC as EN 60130-9 on 1995-03-06 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) 1996-03-15
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-03-15

Annexes designated “normative” are part of the body of the standard. In this standard, Annex ZA is normative. Annex ZA has been added by CENELEC.

Foreword to amendment A2

The text of amendment A2:1995 to the International Standard IEC 60130-9:1989, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the formal vote and was approved by CENELEC as amendment A2 to EN 60130-9:1995 on 1997-07-01 without any modification.

The following dates were fixed:

- latest date by which the amendment 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 amendment have to be withdrawn (dow) 1998-06-01

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Table I

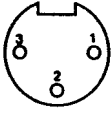
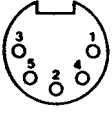
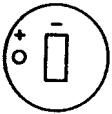
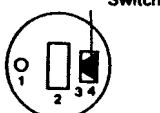
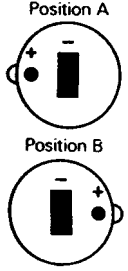
Contact arrangement	Type designation		Application	
	Male connector	Female connector		
	130-9 IEC-01 Also possible in housing 130-9 IEC-22 130-9 IEC-25	130-9 IEC-02 Also possible in housing 130-9 IEC-23 130-9 IEC-24	Microphone	Monaural system (balanced)
				Monaural system (unbalanced)
	130-9 IEC-03 Also possible in housing 130-9 IEC-22 130-9 IEC-25	130-9 IEC-04 Also possible in housing 130-9 IEC-23 130-9 IEC-24	Microphone	Stereophonic system (balanced)
				Stereophonic system (unbalanced)
			Record player	Monaural system
			See Note 2	Stereophonic system
			Tape recorder	Monaural system
			See Note 2	Stereophonic system
	130-9 IEC-06	130-9 IEC-07 130-9 IEC-09	Low impedance loudspeaker	Connection of separate loudspeakers
		130-9 IEC-08 See Note 4		Connection of separate loudspeakers
	130-9 IEC-05 See Note 4			Loudspeaker connection to socket connector with or without switch

Table I

Connections				
1	2	3	4	5
Hot lead	Screening; earth	Return lead		
Hot lead				
Hot lead of left-hand channel		Return lead of left-hand channel	Hot lead of right-hand channel	Return lead of right-hand channel
Hot lead of left-hand channel			Hot lead of right-hand channel	
		Hot lead		Connected to 3
		Hot lead of left-hand channel		Hot lead of right-hand channel
Modulating signal		Reproducing signal	Connected to 1	Connected to 3
Modulating signal of left-hand channel		Reproducing signal of left-hand channel	Modulating signal of right-hand channel	Reproducing signal of right-hand channel
Hot lead	Return lead			
		See Note 5		

Table I

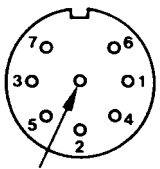
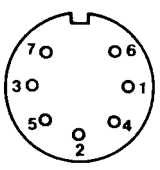
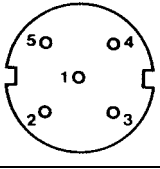
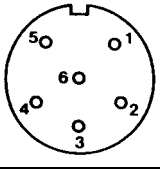
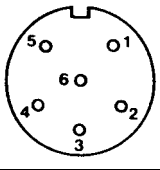
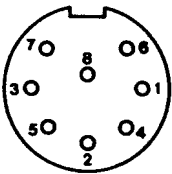
Contact arrangement	Type designation		Application	
	Male connector	Female connector		
 Measuring point	130-9 IEC-10 Also possible in housing 130-9 IEC-22 130-9 IEC-25	130-9 IEC-11 Also possible in housing 130-9 IEC-23 130-9 IEC-24	Connector for stereotape player to car radio	Monaural system Stereophonic system
	130-9 IEC-12	130-9 IEC-13	(Under consideration)	
	130-9 IEC-14	130-9 IEC-15 130-9 IEC-15a	Connection between amplifier and stereo headphones	
	130-9 IEC-16 Also possible in housing 130-9 IEC-22 130-9 IEC-25	130-9 IEC-17 Also possible in housing 130-9 IEC-23 130-9 IEC-24	Connection between mono car radio and tape recorder with power switching	
			Connection between video tape recorder and TV receiver	
	130-9 IEC-19 Also possible in housing 130-9 IEC-22 130-9 IEC-25	130-9 IEC-18 Also possible in housing 130-9 IEC-23 130-9 IEC-24	Connection between mono car radio and tape recorder with power switching	
			Connection between video tape recorder and TV receiver	

Table I

Connections						
1	2	3	4	5	6	7
Modulating signal (recording)	Screening: earth See Note 3	Reproducing signal (playback)	Connected to 1	Connected to 3	Return load for supply voltage	Switched supply voltage
Modulating signal of left-hand channel		Reproducing signal of left-hand channel	Modulating signal of right-hand channel	Reproducing signal of right-hand channel		
See IEC Publication 268-11 (Table III)						
Modulating signal from demodulator (recording)	Reproducing signal to audio amplifier (playback)	Screen/earth	Switched supply voltage (max. 0.3 A)	Supply voltage	Auxiliary functions or connected to 3 or 5 for screens	
(Under consideration)						
Modulating signal from demodulator (recording)	Reproducing signal to audio amplifier (playback)	Screen/earth	Switched supply voltage (max. 0.3 A)	Supply voltage	Auxiliary functions or connected to 3 or 5 for screens	
(Under consideration)						

Table I

Contact arrangement	Male connector	Female connector	Application	Connections							
				1	2	3	4	5	6	7	8
	130-9 IEC-20 Also possible in housing 130-9 IEC-22 130-9 IEC-25	130-9 IEC-21 Also possible in housing 130-9 IEC-23 130-9 IEC-24	For microphones in non-severe environments	See IEC 268-11							

1 Scope

This standard relates to circular connectors for radio and associated sound equipment.

The design of the connectors is such that they are suitable for use with apparatus where IEC safety requirements according to IEC Publication 65: Safety Requirements for Mains Operated Electronic and Related Equipment for Domestic and Similar General Use, apply.

2 IEC type designation

Connectors according to this standard shall be designated by:

- a) the reference to this standard: 130-9 IEC;
- b) a serial number (see Table I).

3 Contact arrangements and connections

The contact arrangements and the connections of each type of connector are shown in Table I.

NOTE 1 The contact pattern and the connections of the connectors are specified in Table I.

The numbering of the contacts is shown as seen on the mating face of the female connector, unless otherwise indicated.

NOTE 2 The same connectors are used for monaural and stereophonic systems.

NOTE 3 In normal cases, it is recommended to connect the shell of the plug to terminal 2 of the connector to ensure that the screen is earthed.

In special cases, however, it may be necessary to separate the screen from earth.

The screen is then connected to the contact spring which is in contact with the protective collar of the male connector, but this termination is not shown.

NOTE 4 The male connector Type 05 can be inserted in a female connector Type 08 in either of the two positions A or B (see Appendix B).

The switch is actuated by the short round pin 1, when the male connector is inserted in position B. The construction of the switch shall be such that it opens properly when the round pin is inserted and spring 4 is in contact with the pin.

In this position, there shall be no connection between contact 3 and the round pin.

NOTE 5 The use of the socket connector with switch and its circuitry depend upon the switching function which is to take place when the male connector is inserted.

The circuitry shown in Appendix B is suggested to illustrate the use of the switch.

4 Dimensions

The dimensions in millimetres are original.

Dimensions and tolerances are given in Table II up to and including Table XXVII.

The size and suspension system of the sockets shall be such that the insertion and withdrawal forces are in accordance with the requirements given in Clause 8.

It shall be impossible to insert a wire having a diameter of 1 mm (0.04 in) either in the entry of female contacts or in the interior of the connector.

All female connectors shall have solder tags accommodating two wires having a diameter up to 0.64 mm (0.025 in).

FREE CONNECTOR, THREE MALE CONTACTS, FOR MICROPHONE

130-9 IEC-01

Numérotation des contacts vue sur la face d'accouplement
 Numbering of contacts seen at the mating face

Les dimensions en millimètres sont les dimensions originales
The millimetre dimensions are original dimensions

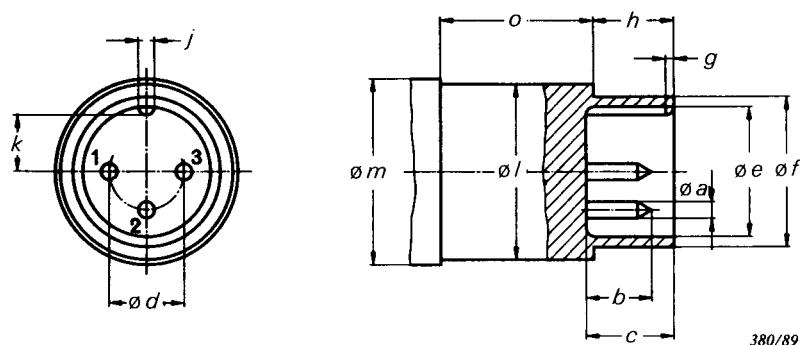


Figure 1

Table II

Reference	mm		in	
	Max.	Min.	Max.	Min.
$\varnothing a$	1,5	1,46	0.059	0.057
b	8,5	7,5	0.335	0.295
c	9,3	8,8	0.366	0.346
$\varnothing d$	7,05	6,95	0.278	0.274
$\varnothing e$	12,4	12,1	0.488	0.476
$\varnothing f$	13,6	13,1	0.535	0.516
g	1	—	0.039	—
h	9	8,5	0.354	0.335
j	2,4	2,2	0.095	0.087
k	4,9	4,55	0.193	0.179
$\varnothing l$	16,5	—	0.650	—
$\varnothing m$	18	—	0.709	—
o	—	15	—	0.591

First angle projection

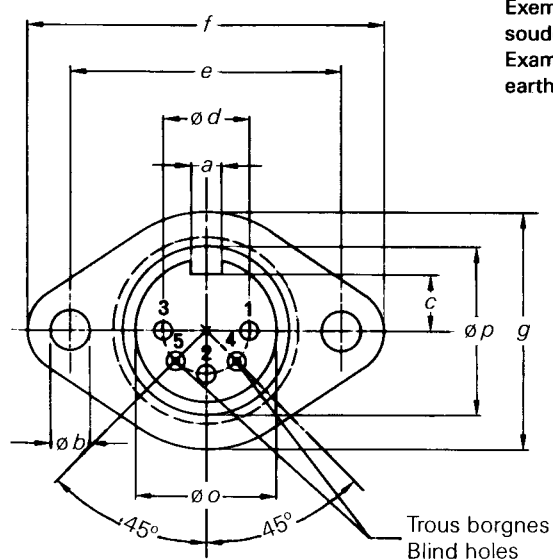
Date: 1989

FIXED CONNECTOR, THREE FEMALE CONTACTS, FOR SOUND EQUIPMENT

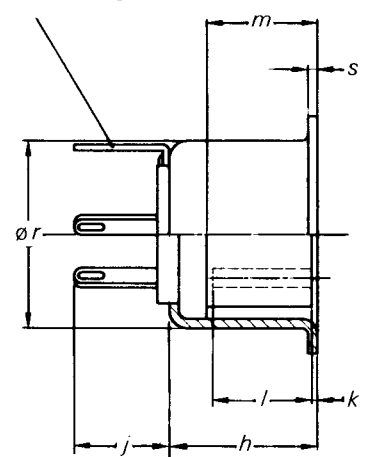
130-9 IEC-02

Numérotation des contacts vue sur la face d'accouplement
 Numbering of contacts seen at the mating face

Les dimensions en millimètres sont les dimensions originales
The millimetre dimensions are original dimensions



Exemple de positionnement d'une cosse à souder pour mise à la terre ou blindage
 Example for positioning of a solder-tag for earthing or screening



381/89

Figure 2

Table III

Reference	mm		in	
	Max.	Min.	Max.	Min.
a	2,7	2,5	0.106	0.098
Ø b	3,3	3,2	0.130	0.126
c	4,5	—	0.177	—
Ø d	7,05	6,95	0.278	0.274
e	22,3	22,1	0.878	0.870
f	29	—	1.142	—
g	19	—	0.748	—
h	12,6	11,9	0.496	0.469
j	8	—	0.315	—
k	1	—	0.039	—
l	—	8,7	—	0.343
m	—	9	—	0.354
Ø o	11,8	11,6	0.465	0.457
Ø p	14,0	13,8	0.551	0.543
Ø r	16,2	—	0.638	—
s (metal)	1,3	1,0	0.051	0.039
s (plastic)	3,4	3,0	0.134	0.118

First angle projection

Date: 1989

**FREE CONNECTOR, FIVE MALE CONTACTS, FOR RECORD PLAYER
AND TAPE RECORDER**

130-9 IEC-03

Numérotation des contacts vue sur la face d'accouplement
Numbering of contacts seen at the mating face

Les dimensions en millimètres sont les dimensions originales
The millimetre dimensions are original dimensions

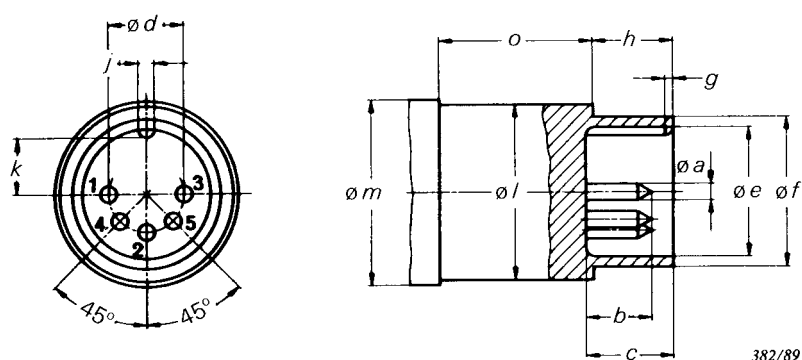


Figure 3

Table IV

Reference	mm		in	
	Max.	Min.	Max.	Min.
$\varnothing a$	1,5	1,46	0.059	0.057
b	8,5	7,5	0.335	0.295
c	9,3	8,8	0.366	0.346
$\varnothing d$	7,05	6,95	0.278	0.274
$\varnothing e$	12,4	12,1	0.488	0.476
$\varnothing f$	13,6	13,1	0.535	0.516
g	1	—	0.039	—
h	9	8,5	0.354	0.335
j	2,4	2,2	0.095	0.087
k	4,9	4,55	0.193	0.179
$\varnothing l$	16,5	—	0.650	—
$\varnothing m$	18	—	0.709	—
o	—	15	—	0.591

First angle projection

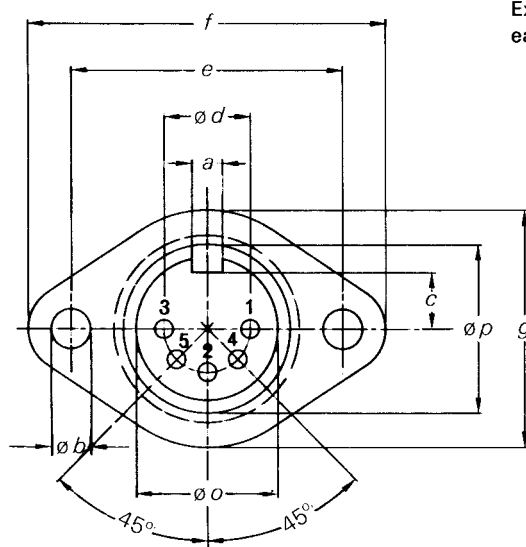
Date: 1989

**FIXED CONNECTOR, FIVE FEMALE CONTACTS, FOR RECORD PLAYER
AND TAPE RECORDER**

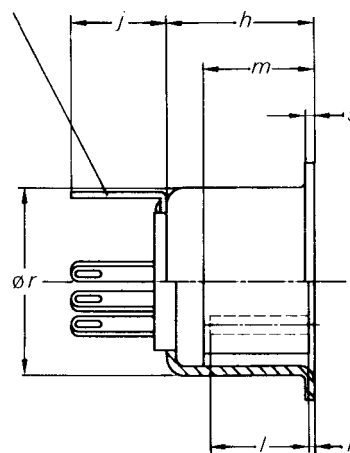
130-9 IEC-04

Numérotation des contacts vue sur la face d'accouplement
Numbering of contacts seen at the mating face

Les dimensions en millimètres sont les dimensions originales
The millimetre dimensions are original dimensions



Exemple de positionnement d'une cosse à souder pour mise à la terre ou blindage
Example for positioning of a solder-tag for earthing or screening



383/89

Figure 4

Table V

Reference	mm		in	
	Max.	Min.	Max.	Min.
a	2,7	2,5	0.106	0.098
Ø b	3,3	3,2	0.130	0.126
c	4,5	—	0.177	—
Ø d	7,05	6,95	0.278	0.274
e	22,3	22,1	0.878	0.870
f	29	—	1.142	—
g	19	—	0.748	—
h	12,6	11,9	0.496	0.469
j	8	—	0.315	—
k	1	—	0.039	—
l	—	8,7	—	0.343
m	—	9	—	0.354
Ø o	11,8	11,6	0.465	0.457
Ø p	14,0	13,8	0.551	0.543
Ø r	16,2	—	0.638	—
s (metal)	1,3	1,0	0.051	0.039
s (plastic)	3,4	3,0	0.134	0.118

First angle projection

Date: 1989

FREE CONNECTOR, TWO MALE CONTACTS, FOR LOUDSPEAKER

130-9 IEC-05

Numérotation des contacts vue sur la face d'accouplement
 Numbering of contacts seen at the mating face

Les dimensions en millimètres sont les dimensions originales
The millimetre dimensions are original dimensions

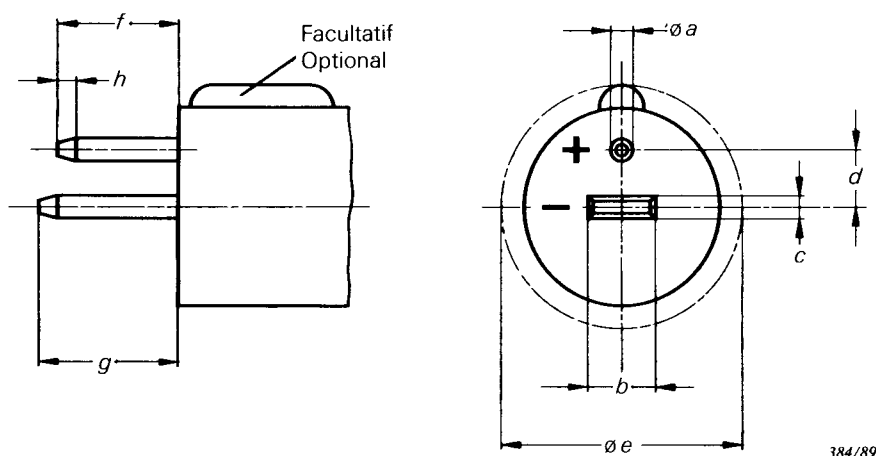


Figure 5

Table VI

Reference	mm		in	
	Max.	Min.	Max.	Min.
Ø a	1,5	1,46	0.059	0.057
b	4,5	4,3	0.177	0.169
c	1,535	1,465	0.0604	0.0576
d	3,55	3,45	0.140	0.136
Ø e	16	—	0.630	—
f	8,5	8,0	0.335	0.315
g	9,5	9,0	0.374	0.354
h	1,3	0,8	0.051	0.031

First angle projection

Date: 1989

FIXED CONNECTOR, TWO MALE CONTACTS, FOR LOUDSPEAKER BOX

130-9 IEC-06

Numérotation des contacts vue sur la face d'accouplement
 Numbering of contacts seen at the mating face

Les dimensions en millimètres sont les dimensions originales
The millimetre dimensions are original dimensions

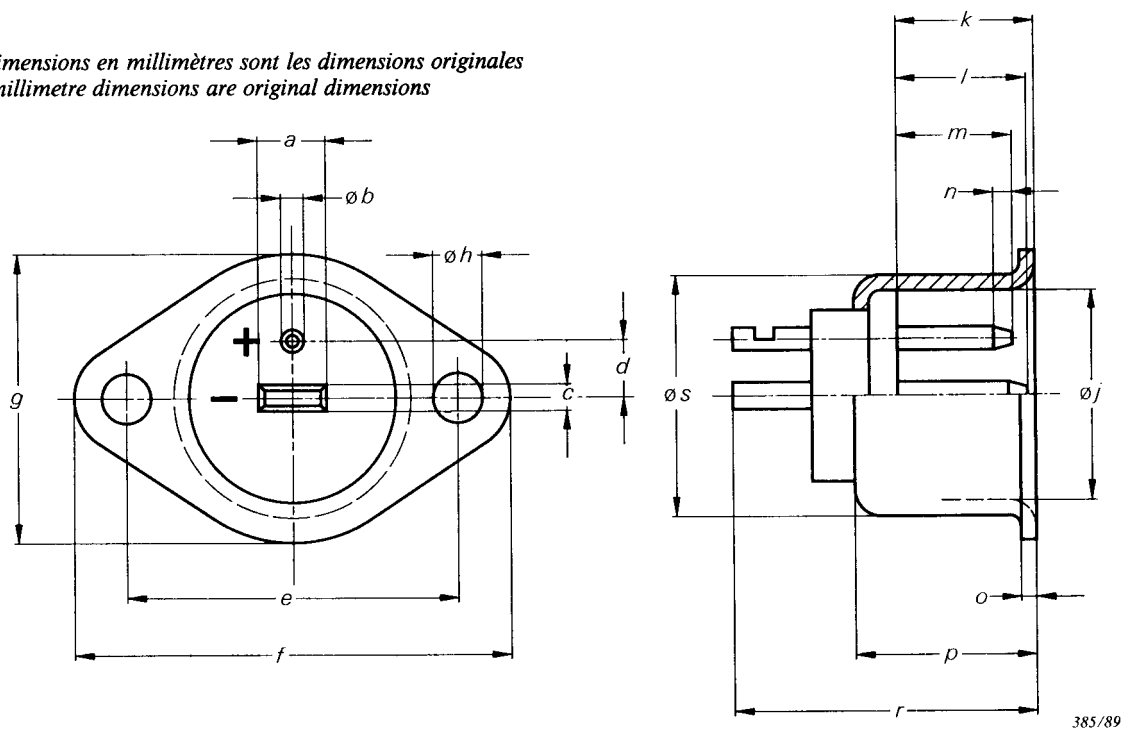


Figure 6

Table VII

Reference	mm		in	
	Max.	Min.	Max.	Min.
<i>a</i>	4,5	4,3	0.177	0.169
$\varnothing b$	1,5	1,46	0.059	0.0574
<i>c</i>	1,535	1,465	0.0604	0.0576
<i>d</i>	3,55	3,45	0.140	0.136
<i>e</i>	22,3	22,1	0.878	0.870
<i>f</i>	29	—	1.142	—
<i>g</i>	19	—	0.748	—
$\varnothing h$	3,3	3,2	0.130	0.126
$\varnothing j$	14,0	13,8	0.554	0.543
<i>k</i>	10,0	9,5	0.394	0.374
<i>l</i>	9,5	9,0	0.374	0.354
<i>m</i>	8,5	8,0	0.335	0.315
<i>n</i>	1,3	—	0.051	—
<i>o</i>	1,3	1,0	0.051	0.039
<i>p</i>	12,6	11,9	0.496	0.469
<i>r</i>	20	—	0.787	—
$\varnothing s$	16,2	—	0.638	—

First angle projection

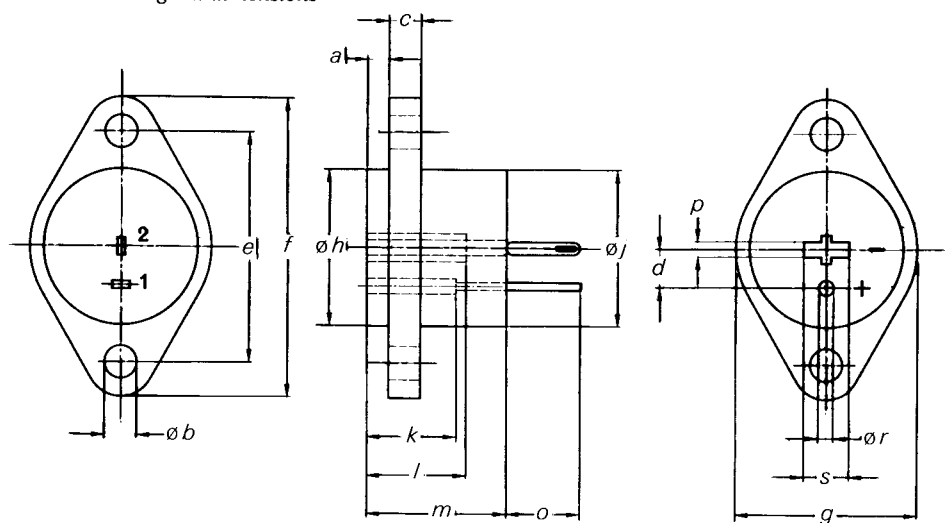
Date: 1989

**FIXED CONNECTOR, TWO FEMALE CONTACTS, FOR SOUND
EQUIPMENT AND RADIO RECEIVERS**

130-9 IEC-07

Numérotation des contacts vue sur la face de soudage
Numbering of contacts seen at the soldering face

Les dimensions en millimètres sont les dimensions originales
The millimetre dimensions are original dimensions



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Figure 7

Table VIII

Reference	mm		in	
	Max.	Min.	Max.	Min.
<i>a</i>	2	1	0.079	0.039
$\varnothing b$	3,3	3,2	0.130	0.126
<i>c</i>	3,4	3,0	0.134	0.118
<i>d</i>	3,55	3,45	0.140	0.136
<i>e</i>	22,3	22,1	0.878	0.870
<i>f</i>	29	—	1.142	—
<i>g</i>	19	—	0.748	—
$\varnothing h$	16	—	0.630	—
$\varnothing j$	16	—	0.630	—
<i>k</i>	—	8,7	—	0.343
<i>l</i>	—	9,7	—	0.382
<i>m</i>	15	—	0.591	—
<i>o</i>	8	—	0.315	—
<i>p</i>	1,7	1,6	0.067	0.063
$\varnothing r$	1,8	1,7	0.071	0.067
<i>s</i>	4,7	4,6	0.185	0.181

First angle projection

Date: 1989

