

Connectors for frequencies below 3 MHz —

Part 9: Circular connectors for radio and associated sound equipment

The European Standard EN 60130-9:2000 has the status of a
British Standard

ICS 31.220.10

National foreword

This British Standard is the official English language version of EN 60130-9:2000. It is identical with IEC 60130-9:2000. It supersedes BS EN 60130-9:1997 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee EPL/48, Electromechanical components for electronic equipment, to Subcommittee EPL/48/2, Connectors for electronic equipment, 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 by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 56, an inside back cover and a back cover.

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Amd. No.	Date	Comments

English version

Connectors for frequencies below 3 MHz
Part 9: Circular connectors for radio and associated sound equipment
(IEC 60130-9:2000)

Connecteurs utilisés aux fréquences
jusqu'à 3 MHz
Partie 9: Connecteurs circulaires pour
appareils de radiodiffusion et équipements
électroacoustiques associés
(CEI 60130-9:2000)

Steckverbinder für Frequenzen
unter 3 MHz
Teil 9: Rundsteckverbinder für Rundfunk-
und verwandte elektroakustische Geräte
(IEC 60130-9:2000)

This European Standard was approved by CENELEC on 2000-06-01. 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.

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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

Foreword

The text of document 48B/852/FDIS, future amendment to 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 IEC-CENELEC parallel vote and was approved by CENELEC as amendment A3 to EN 60130-9:1995 on 2000-06-01.

The text of this document, together with that of IEC 60130-9:1989 and its amendments 1:1993 and 2:1995, was published by IEC as the 3rd edition of IEC 60130-9 in May 2000. According to a decision of principle taken by the Technical Board of CENELEC, the approval of EN 60130-9:1995/A3 has been converted into the approval of a new EN 60130-9.

This European Standard supersedes EN 60130-9:1995 and its amendment A2:1997.

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) 2001-03-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2003-06-01

Endorsement notice

The text of the International Standard IEC 60130-9:2000 was approved by CENELEC as a European Standard without any modification.

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Table 1

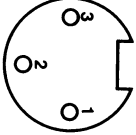
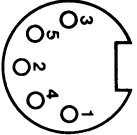
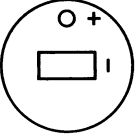
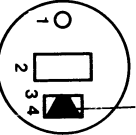
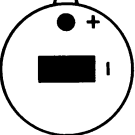
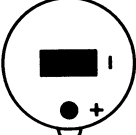
Contact arrangement	Type designation		Application	Connections				
	Male connector	Female connector		1	2	3	4	5
	60130-9 IEC-01 Also possible in housing 60130-9 IEC-22 60130-9 IEC-25	60130-9 IEC-02 Also possible in housing 60130-9 IEC-23 60130-9 IEC-24	Microphone	Hot lead	Screening: earth	Return lead		
	60130-9 IEC-03 Also possible in housing 60130-9 IEC-22 60130-9 IEC-25	60130-9 IEC-04 Also possible in housing 60130-9 IEC-23 60130-9 IEC-24	Microphone	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	
			Record player			Hot lead		Connected to 3
			See note 2	Stereophonic system		Hot lead of left-hand channel		Hot lead of right-hand channel
			Tape recorder	Monaural system		Reproducing signal	Connected to 1	Connected to 3
	60130-9 IEC-06	60130-9 IEC-07 60130-9 IEC-09		Modulating signal of left-hand channel	See note 3	Reproducing signal of left-hand channel	Modulating signal of right-hand channel	Reproducing signal of right-hand channel
		60130-9 IEC-08 See note 4	Low impedance loudspeaker	Connection of separate loudspeakers	Hot lead	Return lead	See note 5	
	60130-9 IEC-05 See note 4			Connection of separate loudspeakers				
				Loudspeaker connection to socket connector with or without switch				

Table 1 (continued)

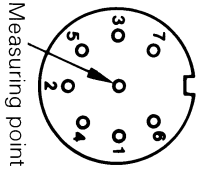
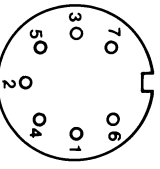
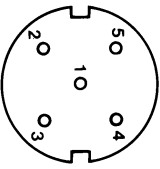
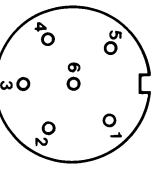
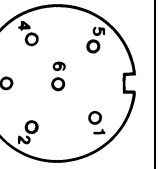
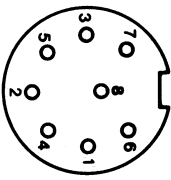
Contact arrangement	Type designation		Application		Connections						
	Male connector	Female connector			1	2	3	4	5	6	7
 Measuring point	60130-9 IEC-10 Also possible in housing 60130-9 IEC-22 60130-9 IEC-25	60130-9 IEC-11 Also possible in housing 60130-9 IEC-23 60130-9 IEC-24	Connector for stereotape player to car radio	Monaural system	Modulating signal (recording)	Screening; earth	Reproducing signal (playback)	Connected to 1	Connected to 3	Return load for supply voltage	Switched supply voltage
				Stereo- phonic system	Modulating signal of left-hand channel	See note 3	Reproducing signal of left-hand channel	Modulating signal of right-hand channel	Reproducing signal of right-hand channel		
	60130-9 IEC-12	60130-9 IEC-13	(Under consideration)								
	60130-9 IEC-14	60130-9 IEC-15 60130-9 IEC-15a	Connection between amplifier and stereo headphones								
					See IEC 60268-11 (Table III)						
	60130-9 IEC-16 Also possible in housing 60130-9 IEC-22 60130-9 IEC-25	60130-9 IEC-17 Also possible in housing 60130-9 IEC-23 60130-9 IEC-24	Connection between mono car radio and tape recorder with power switching		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	
			Connection between video tape recorder and TV receiver		(Under consideration)						
	60130-9 IEC-19 Also possible in housing 60130-9 IEC-22 60130-9 IEC-25	60130-9 IEC-18 Also possible in housing 60130-9 IEC-23 60130-9 IEC-24	Connection between mono car radio and tape recorder with power switching		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	
			Connection between video tape recorder and TV receiver		(Under consideration)						

Table 1 (concluded)

Contact arrangement	Type designation		Application	Connections							
	Male connector	Female connector		1	2	3	4	5	6	7	8
	60130-9 IEC-20 Also possible in housing 60130-9 IEC-22 60130-9 IEC-25	60130-9 IEC-21 Also possible in housing 60130-9 IEC-23 60130-9 IEC-24	For microphones in non-severe environments								

Contact arrangement	Type designation		Connections													
	Male connector	Female connector	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	60130-9 IEC-26 Fixed connector	60130-9 IEC-27 Free connector	Re-verse	For-ward	(+)UB	Triac gate	Low voltage terminal	Low voltage terminal, triac A1	Focus	Triac A2	0 to 220 K Ω	0 to 220 K Ω	Magazine at zero position	Snap shutter	(-)UB	(max. +UB)
	60130-9 IEC-28 Free connector	60130-9 IEC-29 Fixed connector	Contact to 3	Contact to 3	(SELV)		Phase	Common	Contact to 3 or 13		(Lamp control circuit)			Contact to 3	(Zero volt)	(For control purposes)

CONNECTORS FOR FREQUENCIES BELOW 3 MHz –

Part 9: Circular connectors for radio and associated sound equipment

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 60065: Audio, video and similar electronic apparatus – Safety requirements, apply.

2 IEC type designation

Connectors according to this standard shall be designated by:

- a) the reference to this standard: 60130-9 IEC;
- b) a serial number (see table 1).

3 Contact arrangements and connections

The contact arrangements and the connections of each type of connector are shown in table 1.

NOTE 1 The contact pattern and the connections of the connectors are specified in table 1. 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 annex C).

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 annex C is suggested to illustrate the use of the switch.

4 Dimensions

The dimensions in millimetres are original.

Dimensions and tolerances are given in tables 2 up to and including 33.

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

60130-9 IEC-01

Numbering of contacts seen at the mating face

The millimetre dimensions are original dimensions

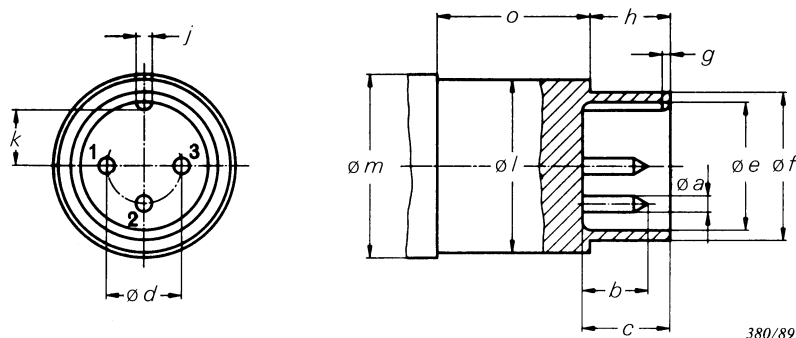


Figure 1

Table 2

Reference	mm		in	
	Max.	Min.	Max.	Min.
ø 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
ø d	7,05	6,95	0,278	0,274
ø e	12,4	12,1	0,488	0,476
ø 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
ø l	16,5	—	0,650	—
ø m	18	—	0,709	—
o	—	15	—	0,591

First angle projection

Date: 1989



Documents

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FIXED CONNECTOR, THREE FEMALE CONTACTS,
 FOR SOUND EQUIPMENT

60130-9 IEC-02

Numbering of contacts seen at the mating face

The millimetre dimensions are original dimensions

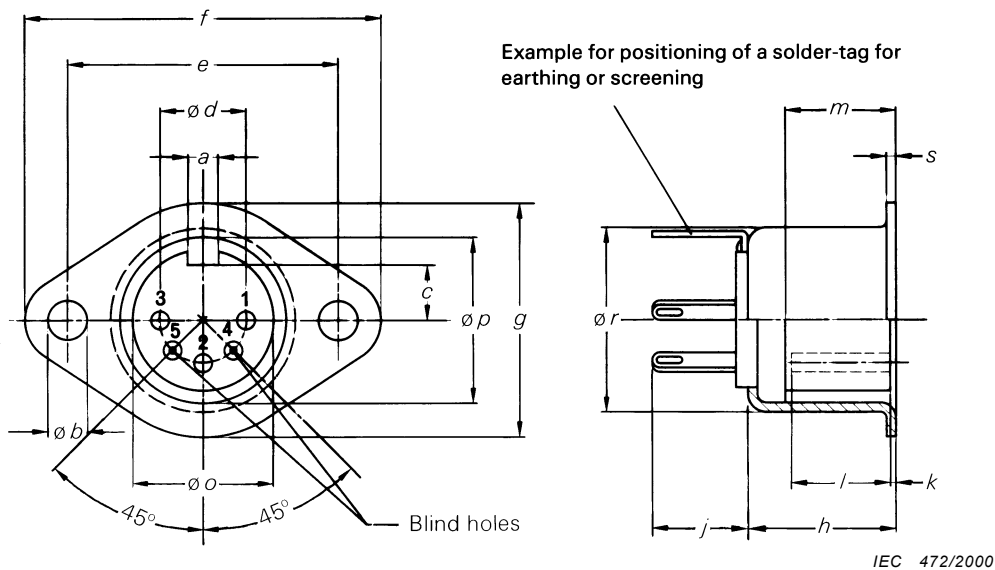


Figure 2

Table 3

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

Documents

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

60130-9 IEC-03

Numbering of contacts seen at the mating face

The millimetre dimensions are original dimensions

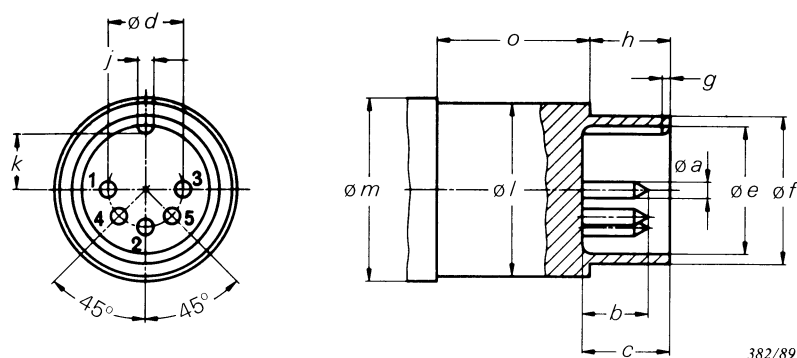


Figure 3

Table 4

Reference	mm		in	
	Max.	Min.	Max.	Min.
Ø 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
Ø d	7,05	6,95	0,278	0,274
Ø e	12,4	12,1	0,488	0,476
Ø 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
Ø l	16,5	—	0,650	—
Ø m	18	—	0,709	—
o	—	15	—	0,591

First angle projection

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

60130-9 IEC-04

Numbering of contacts seen at the mating face

The millimetre dimensions are original dimensions

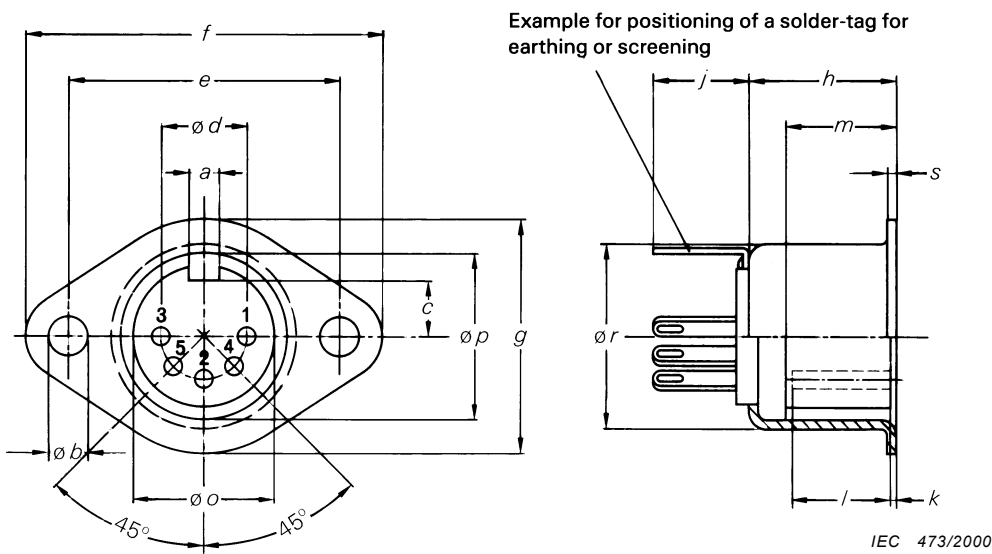


Figure 4

Table 5

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

60130-9 IEC-05

Numbering of contacts seen at the mating face

The millimetre dimensions are original dimensions

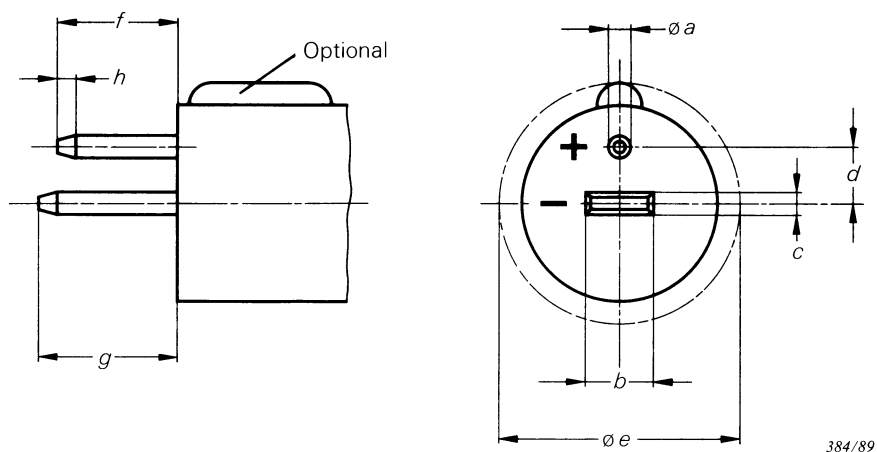


Figure 5

Table 6

Reference	mm		in	
	Max.	Min.	Max.	Min.
$\varnothing a$	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
$\varnothing e$	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

FIXED CONNECTOR, TWO MALE CONTACTS, FOR LOUDSPEAKER BOX

60130-9 IEC-06

Numbering of contacts seen at the mating face

The millimetre dimensions are original dimensions

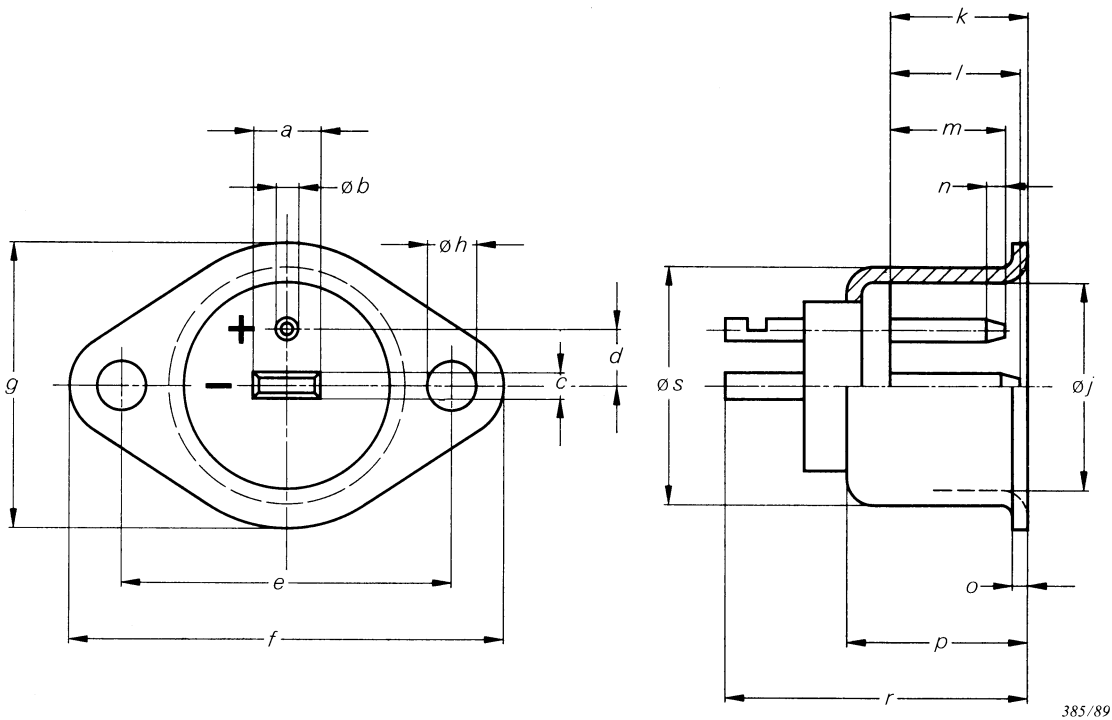


Figure 6

Table 7

Reference	mm		in	
	Max.	Min.	Max.	Min.
a	4,5	4,3	0,177	0,169
∅ b	1,5	1,46	0,059	0,0574
c	1,535	1,465	0,0604	0,0576
d	3,55	3,45	0,140	0,136
e	22,3	22,1	0,878	0,870
f	29	—	1,142	—
g	19	—	0,748	—
∅ h	3,3	3,2	0,130	0,126
∅ j	14,0	13,8	0,554	0,543
k	10,0	9,5	0,394	0,374
l	9,5	9,0	0,374	0,354
m	8,5	8,0	0,335	0,315
n	1,3	—	0,051	—
o	1,3	1,0	0,051	0,039
p	12,6	11,9	0,496	0,469
r	20	—	0,787	—
∅ s	16,2	—	0,638	—

First angle projection

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

60130-9 IEC-07

Numbering of contacts seen at the soldering face

The millimetre dimensions are original dimensions

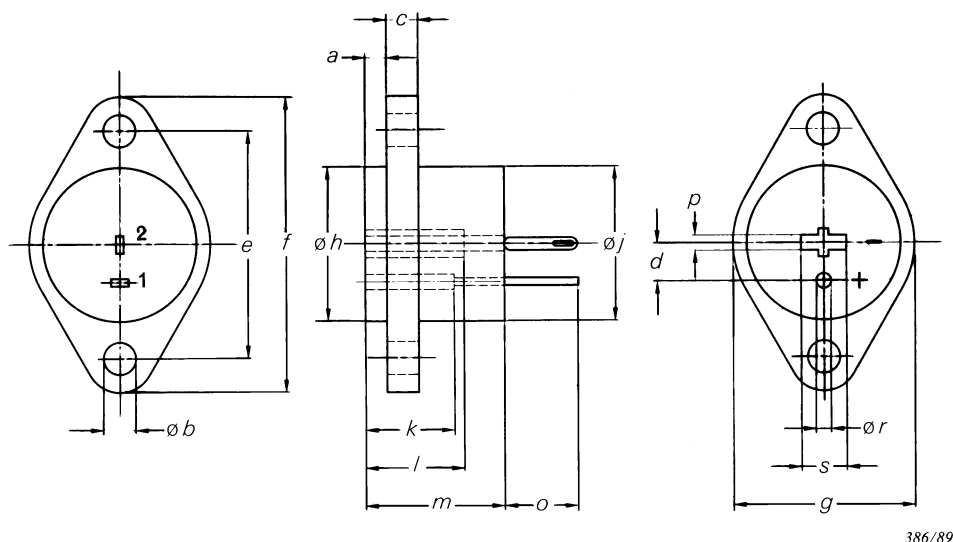


Figure 7

Table 8

Reference	mm		in	
	Max.	Min.	Max.	Min.
a	2	1	0,079	0,039
Ø b	3,3	3,2	0,130	0,126
c	3,4	3,0	0,134	0,118
d	3,55	3,45	0,140	0,136
e	22,3	22,1	0,878	0,870
f	29	—	1,142	—
g	19	—	0,748	—
Ø h	16	—	0,630	—
Ø j	16	—	0,630	—
k	—	8,7	—	0,343
l	—	9,7	—	0,382
m	15	—	0,591	—
o	8	—	0,315	—
p	1,7	1,6	0,067	0,063
Ø r	1,8	1,7	0,071	0,067
s	4,7	4,6	0,185	0,181

First angle projection

Date: 1989



Documents

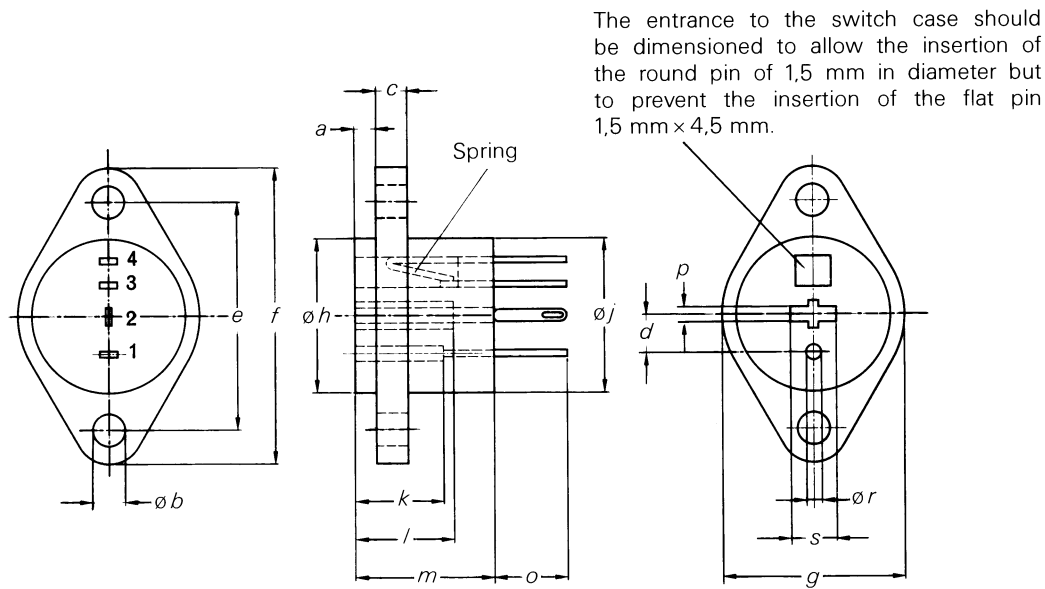
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FIXED CONNECTOR, TWO FEMALE CONTACTS, WITH SWITCH

60130-9 IEC-08

Numbering of contacts seen at the soldering face

The millimetre dimensions are original dimensions



IEC 474/2000

Figure 8

Table 9

Reference	mm		in	
	Max.	Min.	Max.	Min.
a	2	1	0,079	0,039
∅ b	3,3	3,2	0,130	0,126
c	3,4	3,0	0,134	0,118
d	3,55	3,45	0,140	0,136
e	22,3	22,1	0,878	0,870
f	29	—	1,142	—
g	19	—	0,748	—
∅ h	16	—	0,630	—
∅ j	16	—	0,630	—
k	—	8,7	—	0,343
l	—	9,7	—	0,382
m	15	—	0,591	—
o	8	—	0,315	—
p	1,7	1,6	0,067	0,063
∅ r	1,8	1,7	0,071	0,067
s	4,7	4,6	0,185	0,181

First angle projection

Date: 1989