IEC 60884-2-5

Edition 2.0 2017-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Plugs and socket-outlets for household and similar purposes – Part 2-5: Particular requirements for adaptors

Prises de courant pour usages domestiques et analogues – Partie 2-5: Exigences particulières pour les adaptateurs

IEC 60884-2-5:2017-05(en-fr)

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PLUGS AND SOCKET-OUTLETS FOR HOUSEHOLD AND SIMILAR PURPOSES –

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FOREWORD

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International Standard IEC 60884-2-5 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

This bilingual version (2018-07) corresponds to the monolingual English version, published in 2017-05.

This second edition cancels and replaces the first edition published in 1995. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) a general alignment with IEC 60884-1:2002, Amendment 1:2006 and Amendment 2:2013;
b) new and modified definitions;

c) requirements for travel adaptors, for adaptors with additional functions and for adaptors with a cable outlet;

d) requirements for adaptors with incorporated overcurrent protective devices;

e) requirement to warn against inserting an adaptor into another adaptor;

f) new requirements for the construction and shape of the adaptors.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
23B/1242/FDIS	23B/1246/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-5 shall be used in conjunction with IEC 60884-1. It was established on the basis of the third edition of IEC 60884-1 (2002) and of its Amendments 1 (2006) and 2 (2013).

This Part 2-5 supplements or modifies the corresponding clauses in IEC 60884-1, so as to convert that publication into the IEC Standard: Particular requirements for adaptors.

Where this Part 2-5 states "addition", "modification" or "replacement", the relevant requirement, test specifications or explanatory matter in Part 1 shall be adapted accordingly.

Subclauses, figures, tables or notes which are additional to those in Part 1 are numbered starting from 101. Additional annexes are lettered starting from AA.

A list of all parts in the IEC 60884 series, published under the general title *Plugs and socket-outlets for household and similar purposes*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. at this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

PLUGS AND SOCKET-OUTLETS FOR HOUSEHOLD AND SIMILAR PURPOSES –

Part 2-5: Particular requirements for adaptors

1 Scope

Replacement:

This part of IEC 60884 applies to adaptors for a.c. only with or without earthing contact, with a rated voltage greater than 50 V but not exceeding 440 V and a rated current not exceeding 32 A, intended for household and similar purposes, either indoors or outdoors.

This document also applies to travel adaptors (see Annex AA). For travel adaptors the scope is limited to a voltage rating greater than 50 V but not exceeding 250 V and to a current rating not exceeding 20 A.

Travel adaptors allowing the simultaneous connection of two or more plugs are not covered by this document.

NOTE 1 In the following countries the use of non-shuttered adaptors is not allowed: BE, CN, DK, ES, FR, IT, NO, MY, PT, SE, SG, UK, ZA.

NOTE 2 In the following countries adaptors having IP classes below IPX4 shall be provided with shutters: FI.

NOTE 3 In the following countries fused adaptors are not allowed: ZA.

NOTE 4 In the following countries rewirable external flexible cables connected to adaptors are not allowed: ZA.

NOTE 5 In the following countries, travel adaptors shall not be used for charging electrical vehicles: CH, SE.

This document covers the requirements for adaptors with additional functions, however the additional function itself is not covered by this standard.

NOTE 6 Examples of additional functions are electronic power supply units, dimmers, timers, protection devices, infrared switches.

This document does not apply to adaptors incorporating connectors according to IEC 60320 (all parts).

Adaptors complying with this document are suitable for use at ambient temperatures not normally exceeding +40 °C, but their average over a period of 24 h does not exceed +35 °C, with a lower limit of the ambient air temperature of –5 °C.

NOTE 7 Tests for temperatures below normal range are under consideration.

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

IEC 60127-2, *Miniature fuses – Part 2: Cartridge fuse-links*

IEC 60127-3, *Miniature fuses – Part 3: Sub-miniature fuse-links*

IEC 60269-3, *Low-voltage fuses – Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar applications) – Examples of standardized systems of fuses A to F*

IEC 60884-1:2002, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*
IEC 60884-1:2002/AMD1:2006
IEC 60884-1:2002/AMD 2:2013

3 Definitions

This clause of Part 1 is applicable except as follows:

Replacement of NOTE 3:

NOTE 3 The term "accessory" is used as a general term covering plugs, socket-outlets and adaptors; the term "portable accessory" covers plugs, portable socket-outlets and adaptors.

Addition:

NOTE 101 The term "adaptor" is used as a general term covering all types of adaptors except where reference is made to one particular type.

3.25 *Replacement:*

rated voltage
value of voltage assigned to the accessory by the manufacturer

3.26 *Replacement:*

rated current
value of current assigned to the accessory by the manufacturer

Addition:

3.101
adaptor
portable accessory constructed as an integral unit incorporating one plug part and one or more socket-outlet parts, with or without integrated additional functions, allowing the connection of one or more plugs to a socket-outlet, both the socket-outlet and the plugs belonging to the same national system

Note 1 to entry: Examples of national systems are listed in IEC TR 60083.

3.102
fused adaptor
adaptor incorporating a replaceable fuse link in one or more current-carrying poles

Note 1 to entry: Fuses of fused adaptors are not intended to protect appliances or parts of them against overload.

3.103
polarized adaptor
adaptor constructed so that, when inserted in a socket-outlet installed in a polarized wiring installation, the correct relationship between the neutral and the line pole or poles is maintained

3.104
single-way adaptor
adaptor with one socket-outlet part allowing the connection of one plug

3.105
multi-way adaptor
adaptor with more than one socket-outlet part allowing the simultaneous connection of two or more plugs

3.106
travel adaptor
portable accessory, intended for temporary use, allowing the connection of one or more plug type(s) of different national systems to a socket-outlet that is not designed to accept such plugs

Note 1 to entry: A travel adaptor is not necessarily an integral unit and it can include integrated additional functions.

Note 2 to entry: Examples of national systems are listed in IEC TR 60083.

3.107
travel adaptor with movable pins
travel adaptor where plug pins may slide in and out, rotate or fold in any direction, so that they are not permanently fixed but have means to be locked in position for normal use

3.108
intermediate adaptor
adaptor allowing the connection of one or more plugs to a socket-outlet via a control device such as a dimmer, photo-electric switch, etc., which is connected to the adaptor by an external flexible cable

3.109
rewirable intermediate adaptor
intermediate adaptor constructed in such a way that the external flexible cable can be replaced

3.110
non-rewirable intermediate adaptor
intermediate adaptor constructed in such a way that it forms a complete unit with the external flexible cable after connection and assembly by the manufacturer of the adaptor

Note 1 to entry: See also 14.1.

3.111
adaptor with cable outlet
adaptor which may be rewirable or non-rewirable, and constructed in such a way that it allows the connection of an external flexible cable through a cable outlet

3.112
rated power
power value assigned to the accessory by the manufacturer

4 General requirements

This clause of Part 1 is applicable.

5 General remarks on tests

This clause of Part 1 is applicable except as follows:

Addition:

For the purposes of the tests, unless otherwise specified, the word “adaptors” covers all adaptors including fused adaptors, polarized adaptors, single-way adaptors, multi-way adaptors, intermediate adaptors, adaptors with cable outlet and travel adaptors.

6 Ratings

This clause of Part 1 is applicable except as follows:

Addition:

6.101 The rated voltage of the adaptor shall not be lower than the nominal voltage of the supply system to which it can be connected via a socket-outlet.

NOTE Nominal voltages are defined in IEC 60038.

6.102 The rated current of the adaptor shall be the lowest value of the following:

– the rated current of the plug part; or
– the arithmetic sum of the highest rated currents of all plugs which can be simultaneously inserted into the adaptor; or
– the rated current of the incorporated overcurrent protective device, if any.

6.103 When assigned, the rated power of the adaptor shall be calculated by multiplying the rated current (as determined in 6.102) and the rated voltage (as determined in 6.101) at a power factor equal to 1.

Compliance with the requirements of 6.101 to 6.103 is checked by inspection of the marking.

7 Classification

This clause of Part 1 is applicable.

8 Marking

This clause of Part 1 is applicable except as follows:

8.1 *Replacement of the first dashed item:*

– rated current in amperes or rated power in watts, or both;

Addition at the end of the subclause:

The marking for the rated power, if any, shall be completed by the word MAX.

NOTE 101 These markings can be shown as in the examples: MAX 2 000 W or 2 000 W MAX.

The rated power and/or rated current marking shall be easily discernible until the last plug is connected.

NOTE 102 In the following country, marking of the rated power in watts, visible when the adaptor is in use, is mandatory: FR.

Fused adaptors shall be marked to indicate the presence of a fuse within the adaptor and this marking may be in the form of a symbol.

Fused adaptors shall be marked with the rated current and type of fuse on the fuse-holder or in the proximity of the fuse.

An instruction, which may be a symbol or a sentence, warning against inserting an adaptor into another adaptor shall be provided by the manufacturer:

– on the adaptor, or
– on the smallest package unit, or
– on the instruction sheet accompanying the adaptor.

NOTE 103 A standardized symbol and/or sentence can be defined by the National Committees.

8.2 *Addition before NOTE 1:*

Watts ..... W

Fuse ..... 
(see IEC 60417-5016:2002-10)

9 Checking of dimensions

This clause of Part 1 is applicable.

10 Protection against electric shock

This clause of Part 1 is applicable except as follows:

10.1 *Replacement of the second paragraph and NOTE:*

Live parts shall not be accessible when the plug part of an adaptor is in partial or complete engagement with a socket-outlet of the same system.

NOTE In the following countries this requirement does not apply when the plug part of the adaptor is partially engaged: CA, DK, JP, US.

Replacement of the fifth paragraph:

For adaptors, the test finger is applied in every possible position when the adaptor is in partial or complete engagement with a socket-outlet of the same system.

10.3 *Replacement of the first paragraph:*

It shall not be possible to make contact between a pin of a plug and a live socket contact of an adaptor or between a pin of an adaptor and a live socket contact of a socket-outlet, of the same system, whilst any other current-carrying pin is accessible.

10.4 *Replacement of the first paragraph:*

External parts of plugs, with the exception of assembly screws and the like, current-carrying and earthing pins, earthing straps and metal rings around pins and accessible metal parts fulfilling the requirements of 10.2.1 or 10.2.2 of IEC 60884-1:2002, IEC 60884-1:2002/AMD1:2006 and IEC 60884-1:2002/AMD2:2013 , shall be of insulating material.

10.5 *Replacement of the first paragraph:*

Shuttered socket-outlet parts of adaptors shall, in addition, be constructed in such a way that live parts are not accessible without a plug in engagement, when checked with the gauges shown in Figures 9 and 10

Addition:

10.101 Removal of the fuse and/or fuse carrier shall not result in live parts becoming accessible when the adaptor is in full engagement with a socket-outlet.

Compliance is checked by inspection and, in case of doubt, by applying test probe 13 according to IEC 61032 with a force not exceeding 5 N when the fuse and/or fuse carrier are not in position as in normal use and with the adaptor in full engagement with a socket-outlet. The test probe shall not touch live parts.

11 Provision for earthing

This clause of Part 1 is applicable.

12 Terminals and terminations

This clause of Part 1 is applicable except as follows:

12.1.1 *Replacement of the second paragraph:*

Adaptors with a cable outlet and rewirable intermediate adaptors shall be provided with terminals with screw clamping.

13 Construction of fixed socket-outlets

This clause of Part 1 is not applicable.

14 Construction of plugs and portable socket-outlets

This clause of Part 1 is applicable except as follows:

Replacement of the title:

14 Construction of adaptors

14.1 *Replacement:*

Adaptors shall be constructed in such a way that they cannot be opened by hand or by using a general purpose tool, for example a screwdriver used as such, without making it permanently useless.

Exception is made for adaptors with a cable outlet and rewirable intermediate adaptors, where they shall be constructed in such a way that they can be opened using a general purpose tool, for example a screwdriver used as such.

Compliance is checked by inspection.

NOTE 1 An adaptor is considered permanently useless, when, while re-assembling the adaptor, parts or materials other than the original are used.

NOTE 2 In the following country multiway adaptors shall be so designed and constructed that it is not possible to create additional outputs when plugging two or more multiway adaptors into each other: BE.

NOTE 3 In the following country rewirable adaptors are not allowed: ZA.

14.2 *Replacement of the first paragraph:*

Pins of adaptors shall have adequate mechanical strength.

14.3 *Replacement of the first and second paragraphs:*

Pins of adaptors shall be:

– locked against rotation, except where rotation is not likely to impair safety or function;
– impossible to remove without dismantling the adaptor;
– adequately fixed in the body of the adaptor when the adaptor is wired and assembled as for normal use.

It shall not be possible to arrange the pins or contacts of adaptors in an incorrect position.

14.4 *Replacement of the first paragraph:*

Earthing contacts, phase contacts and neutral contacts of adaptors shall, when in use, be locked against rotation and removable only with the aid of a tool, after dismantling the adaptor.

14.11 *Replacement of the first line of the first paragraph:*

For adaptors with a cable outlet and rewirable intermediate adaptors:

14.13 *Replacement:*

If covers of adaptors are provided with bushes for entry holes for the pins, these bushes shall not become detached inadvertently from the inside when the cover is removed.

Compliance is checked by inspection.

14.15 *Replacement of the first paragraph:*

The engagement face of the plug part of adaptors shall have no projections other than the pins, when the adaptor is wired and assembled as for normal use.

14.16 *Replacement of the first paragraph:*

The socket-outlet parts of adaptors shall be designed in such a way that full engagement of associated plugs is not prevented by any projection from their engagement face.

14.23 *Replacement:*

Adaptors shall not impose undue strain on fixed socket-outlets.

Compliance is checked by the following test.

The adaptor is inserted into a fixed socket-outlet complying with Part 1.

Each socket-outlet part is first fitted with a relevant plug completed with 1 m of 0,75 mm^2 circular flexible cable of 60227 IEC 53 type.

The number of conductors shall be the same as that of the poles of the relevant plug.

The socket-outlet is pivoted about a horizontal axis through the axis of the live socket contacts at a distance of 8 mm behind the engagement face of the socket-outlet and parallel to this engagement face.

The additional torque which has to be applied to the socket-outlet in order to maintain the engagement face in the vertical plane shall not exceed 0,25 Nm.

During the test, care shall be taken that the flexible cable(s) hang(s) freely.

NOTE In the following countries a torque value of 0,5 Nm is allowed: CH, SE.

Addition:

14.23.101 Adaptors shall withstand the lateral strain imposed by equipment likely to be introduced into them.

Compliance is checked by the following test using the device shown in Figure 13.

The specimen is mounted on a vertical surface with, initially, the plane through the live socket contacts horizontal. The face to be tested shall be in a vertical position and parallel to the vertical mounting surface.

The device is then fully-engaged, and a force of 5 N is applied in a vertically downward direction.

The device is removed after 1 min and the adaptor is turned 90° on the mounting surface. The test is made four times, the adaptor being turned 90° after each engagement. During the test the device shall not come out. The test is repeated for each socket-outlet part of the adaptor.

After the test, the adaptor shall show no damage within the context of this document, in particular it shall comply with the requirements of Clause 22.

14.24 *Replacement:*

Adaptors shall be shaped in such a way and/or made of such a material that they can be easily withdrawn by hand from the relevant socket-outlet.

In addition, the gripping surfaces shall be designed in such a way that the adaptor can be withdrawn without having to pull the flexible cable, if any.

Compliance is checked by inspection and in case of doubt by test.

NOTE Examples of possible tests are given in Annex C and by replacing the word “plug” by “adaptor”.

14.25 This subclause of Part 1 is not applicable.

Addition:

14.101 The plug part of adaptors shall be provided with earthing pins or contacts if any one of the socket-outlet parts is provided with an earthing pin or contact.