

English Version

Luminaires - Part 2: Particular requirements - Section 4: Portable general purpose luminaires (IEC 60598-2-4:2017 , modified)

Luminaires - Partie 2: Exigences particulières - Section 4:
Luminaires portatifs à usage général
(IEC 60598-2-4:2017 , modifiée)

Leuchten - Teil 2: Besondere Anforderungen -
Hauptabschnitt 4: Ortsveränderliche Leuchten für
allgemeine Zwecke
(IEC 60598-2-4:2017 , modifiziert)

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

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European foreword

The text of document 34D/1190/CDV, future edition 3 of IEC 60598-2-4, prepared by IEC/SC 34D "Luminaires" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60598-2-4:2018.

A draft amendment, which covers common modifications to IEC 60598-2-4 (34D/1190/CDV), was prepared by CLC/TC 34Z "Luminaires and associated equipment" and approved by CENELEC.

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2018-09-30
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2021-03-30
this document have to be withdrawn

EN 60598-2-4:2018 supersedes EN 60598-2-4:1997 and EN 60598-2-7:1989.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60598-2-4:2017 are prefixed "Z".

This document is to be read in conjunction with EN 60598-1:2015.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 60598-2-4:2017 was approved by CENELEC as a European Standard with agreed common modifications.

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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 61032 | 1997 | Protection of persons and equipment by enclosures - Probes for verification | EN 61032 | 1998 |
| IEC 60598-1 | 2014 | Luminaires - Part 1: General requirements and tests | EN 60598-1 | 2015 (mod) |
| + A1 | 2017 | | + A1 | 2018 |



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Annex ZB
(informative)

Special National Conditions

Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions.

NOTE If it affects harmonization, it forms part of the European Standard.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

Clause Special national condition

4.4.4 **Denmark**

In Denmark, luminaires for outdoor use shall be classified as class II or class III.





Annex ZZ
(informative)

**Relationship between this European standard and the safety objectives of
Directive 2014/35/EU [2014 OJ L96] aimed to be covered**

This European standard has been prepared under a Commission's standardisation request relating to harmonised standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

**Table ZZ.1 – Correspondence between this European standard and
Annex I of Directive 2014/35/EU [2014 OJ L96]**

| Safety objectives of Directive 2014/35/EU | Clause(s) / sub-clause(s) of this EN | Remarks / Notes |
|---|---|---|
| 1. General conditions | | |
| a) the essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the electrical equipment, or, if this is not possible, on an accompanying document; | 4.6 | |
| b) the electrical equipment, together with its component parts, shall be made in such a way as to ensure that it can be safely and properly assembled and connected; | All | http://www.china-gauges.com/ |
| c) the electrical equipment shall be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is assured, providing that the equipment is used in applications for which it was made and is adequately maintained. | See item 2 and 3 of this table | |

| | | |
|---|--|--|
| <p>2. Protection against hazards arising from the electrical equipment</p> <p>Measures of a technical nature shall be laid down in accordance with point 1, in order to ensure that:</p> | | |
| <p>a) persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact;</p> | <p>4.7 4.8 4.9 4.10 4.11 4.12 4.15</p> | |
| <p>b) temperatures, arcs or radiation which would cause a danger, are not produced;</p> | <p>4.7 4.8 4.13 4.15</p> | <p>EMF is not covered</p> |
| <p>c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience;</p> | <p>4.7 4.15 4.8</p> | |
| <p>d) the insulation is suitable for foreseeable conditions.</p> | <p>4.8 4.14 4.15</p> | |
| <p>3. Protection against hazards which may be caused by external influences on the electrical equipment</p> <p>Technical measures shall be laid down in accordance with point 1, in order to ensure that the electrical equipment:</p> | | |
| <p>a) meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered;</p> | <p>4.6 4.7</p> | <p>http://www.china-gauges.com/</p> |
| <p>b) is resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered;</p> | <p>4.14 4.16</p> | |
| <p>c) does not endanger persons, domestic animals and property in foreseeable conditions of overload.</p> | <p>4.7 4.13 4.16</p> | |

EN 60598-2-4:2018 (E)

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2: Other Union legislation may be applicable to the product(s) falling within the scope of this standard.



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LUMINAIRES –

**Part 2-4: Particular requirements –
Portable general purpose luminaires**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60598-2-4 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

This third edition cancels and replaces the second edition published in 1997. This edition constitutes a technical revision.

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

- a) alignment with IEC 60598-1;
- b) modification of the scope, classification and requirements to cover portable luminaires for both indoor and outdoor applications, by introducing the requirements already listed in IEC 60598-2-7;

NOTE In this edition of IEC 60598-2-4 all requirements listed in IEC 60598-2-7 have been incorporated. As a consequence, IEC 60598-2-7 will be withdrawn after publication of this standard.

- c) modification of the scope to cover all electrical light sources (it was previously limited to tungsten filament, tubular fluorescent and other discharge lamps);
- d) introduction of the symbol for luminaires which are other than ordinary, but suitable for indoor applications only (e.g. luminaire using PVC cable);
- e) modification in the detail of test to clarify that the stability test on an inclined plane (see 4.7.3) shall be carried out with the light source(s) in place;
- f) modification of the minimum degree of protection against dust and moisture for portable luminaires for outdoor use from IPX3 to IPX4 (see 4.5.2); as a consequence, the requirements for cable entry position, as given in IEC 60598-2-7:1982, 7.6.3 were deleted as they are covered by IPX4;
- g) modification of the requirements for the acceptance criteria of plug and socket outlet;
- h) modification of the IP test requiring the most unfavourable of the overturned positions to cover all classes (and not only class II luminaires as in 7.13.1 of IEC 60598-2-7:1982).

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

| FDIS | Report on voting |
|---------------|------------------|
| 34D/1257/FDIS | 34D/1271/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.

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

This publication is to be read in conjunction with IEC 60598-1: *Luminaires – Part 1: General requirements and tests*. It was established on the basis of the eight edition (2014) of that standard.

A list of all parts in the IEC 60598 series, published under the general title *Luminaires* can be found on the IEC website.

NOTE In this standard, the following print type is used:

– *compliance statements: in italic type*

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

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

A bilingual version of this publication may be issued at a later date.

LUMINAIRES –

Part 2-4: Particular requirements – Portable general purpose luminaires

4.1 Scope

This part of IEC 60598-2 specifies requirements for portable general purpose luminaires for indoor and/or outdoor use (e.g. garden use), other than handlamps, designed to be used with or incorporating electrical light sources on supply voltages not exceeding 250 V.

4.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 60598-1, *Luminaires – Part 1: General requirements and tests*

4.3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60598-1 as well as the following apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4.3.1

candlestick luminaire

portable luminaire having series connected lamps permanently mounted and separated on a free-standing frame <http://www.china-gauges.com/>

Note 1 to entry: Candlestick luminaires can incorporate E5 or E10 lampholders.

4.4 General test requirements

The provisions of Section 0 of IEC 60598-1 apply. The tests described in each appropriate section of Part 1 shall be carried out in the order listed in this part of IEC 60598-2.

4.5 Classification of luminaires

Luminaires shall be classified in accordance with the provisions of Section 2 of IEC 60598-1 together with the following additions.

NOTE In Australia and New Zealand, AS/NZS 60598.2.4 introduces Appendix A "Simple Portable Luminaires".

4.5.1 According to the intended use:

- ordinary luminaires are classified for indoor use only;
- luminaires which are other than ordinary are classified “for indoor use only”, if they are marked according to 4.6.1;
- luminaires which are other than ordinary (see also 4.5.2) are classified for outdoor use. As the requirements for outdoor use are more severe than those for indoor use, these luminaires are also suitable for indoor use.

4.5.2 According to the degree of protection against dust and moisture, portable luminaires for outdoor use shall be classified IPX4 or higher.

4.5.3 According to the material of the supporting surface, portable luminaires designed for standing on a floor or table shall be classified as suitable for direct mounting on normally flammable surfaces.

4.6 Marking

The provisions of Section 3 of IEC 60598-1 apply, together with the following requirements.

4.6.1 The provisions of 3.3.18 of IEC 60598-1 apply with the following addition.

Luminaires which are other than ordinary, and not suitable for outdoor application (e.g. provided with a PVC supply cord), shall be marked with the appropriate symbol as shown in Figure 1. The symbol shall be explained in the instructions.



[SOURCE: IEC 60417-5957:2004-12]

Figure 1 – Luminaires “For indoor use only”

4.6.2 In addition to the provisions of 3.3.15 of IEC 60598-1, for luminaires for outdoor use, the maximum power calculated from the maximum current rating of the supply cable shall be marked in close proximity to the mains socket-outlet(s) incorporated in the luminaire. <http://www.china-gauges.com/>

4.7 Construction

The provisions of Section 4 of IEC 60598-1 apply, together with the following requirements.

4.7.1 Portable luminaires shall be designed so that the insulation of flexible cables and cords is unlikely to be damaged when moving or adjusting the luminaire or when placing it on its support.

Compliance shall be checked by inspection.

4.7.2 Wiring shall be fixed by means of wire carriers, clips or similar devices of insulating material, at all places where it might otherwise rub against metal parts in the normal movement of the luminaire, if such rubbing will impair safety. Carriers and clips for flexible

cords shall be of insulating material, or shall be provided with a fixed insulating lining if they are accessible or are in contact with accessible metal parts.

Compliance shall be checked by inspection.

4.7.3 Portable luminaires shall have adequate stability. *Compliance shall be checked by placing the luminaire in the most unfavourable adjustment position of normal use on a plane inclined at an angle of:*

- 6° to the horizontal for luminaires for indoor use;
- 15° to the horizontal for luminaires for outdoor use, the surface of the plane being such that the luminaire does not slide.

Any instructions supplied by the manufacturer with the luminaire shall receive due consideration in respect of the stability test. For the test, the luminaire shall be provided with appropriate light source according to the intended use. The luminaire shall not overturn.

Luminaires which are fastened by clamps or similar devices are not subjected to this test.

4.7.4 Candlestick luminaires shall be provided with a switch.

This switch shall, in candlestick luminaires with E5 or E10 lampholders, switch all lamps on and off simultaneously. The switch shall be part of the luminaire or, if in the cord, shall be within 300 mm of the luminaire.

Compliance is checked by inspection.

4.7.5 E5 lampholders shall be used only if the rated voltage does not exceed 25 V per lampholder and the rated voltage of E10 lampholders (60 V for series connection or 250 V for parallel connection) shall be respected. The maximum rated wattage of the luminaire shall not exceed 100 W.

Compliance is checked by inspection.

4.7.6 Portable luminaires for outdoor use shall not be provided with tails. Clause 4.6 of Section 4 of IEC 60598-1 does not apply.

4.7.7 Portable luminaires for outdoor use shall not have more than two cable entries.

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Compliance shall be checked by inspection.

4.7.8 In portable luminaires for outdoor use, the connection between the socket-outlet for providing power to other luminaires and the associated plug shall be in accordance with at least the same degree of protection as the luminaires but not less than IPX4. This degree of protection shall be maintained with or without a plug inserted into the socket-outlet.

Mains socket-outlets mounted on Class II luminaires shall comply with IEC, national or regional standards so as to allow connection only to these outlets of other Class II luminaires.

NOTE It is the intention of this document to disallow the connection of equipment using standard plugs on Class II luminaires as the earthing connection will be lost when connecting Class I luminaires to an outlet on a Class II luminaire.

Mains socket-outlets mounted on Class I luminaires shall allow connection only of Class I or Class II luminaires and shall conform to IEC, national or regional standards:

Compliance shall be checked by inspection.

4.7.9 In portable luminaires for outdoor use, lampholders and plugs shall be of material resistant to tracking.

Compliance shall be checked by the test described in Clause 13.4 of Section 13 of IEC 60598-1.

4.8 Creepage distances and clearances

The provisions of Section 11 of IEC 60598-1 apply.

4.9 Provision for earthing

The provisions of Section 7 of IEC 60598-1 apply.

4.10 Terminals

The provisions of Sections 14 and 15 of IEC 60598-1 apply.

4.11 External and internal wiring

The provisions of Section 5 of IEC 60598-1 apply with the following modifications.



4.11.1 The requirement whereby at least one part of the cord anchorage shall be fixed to or be integral with the luminaire does not apply to table lamps for indoor use of glass or ceramic material.

4.11.2 For class I and class II portable luminaires for indoor use with a mass less than 1 kg, a rated current not exceeding 2,5 A and provided with a flexible cable of length not greater than 2 m, the cable shall have a nominal cross-sectional area of copper conductor not less than 0,5 mm².

4.11.3 Portable luminaires for outdoor use delivered without a flexible cable or cord and a plug shall be provided with terminals, a cord anchorage and an inlet opening for the proper connection of the flexible cable or cord.

NOTE National wiring rules can require Class II portable luminaires for outdoor use to be provided with a non-detachable flexible cable or cord and a plug. <http://www.china-gauges.com/>

Compliance shall be checked by inspection and, if necessary, by the pull and torque test required in Section 5 of IEC 60598-1.

4.11.4  For class I and class II portable luminaires for outdoor use, non-detachable flexible cables or cords shall be not lighter than cords of the type **H05RN-F**. 

NOTE In Australia and New Zealand, PVC insulated cables are acceptable for outdoor use.

Compliance shall be checked by inspection.

4.12 Protection against electric shock

The provisions of Section 8 of IEC 60598-1 apply, together with the following requirements.

Portable Class I luminaires incorporating lampholders for bayonet cap lamps shall either

- 1) be so designed that the lamp cap is not accessible to the standard test finger when the luminaire is assembled as in normal use, or
- 2) be provided with a metal lampholder which is earthed.

Compliance shall be checked by inspection and, in addition, for item 1) by a jointed test finger shown in figure 2 of IEC 61032:1997.

4.13 Endurance tests and thermal tests

The provisions of Section 12 of IEC 60598-1 apply.

Luminaires with an IP classification greater than IP20 shall be subjected to the relevant tests of Clauses 12.4, 12.5, 12.6 and 12.7 of Section 12 of IEC 60598-1, after the test(s) of Clause 9.2, but before the test(s) of Clause 9.3 of Section 9 of IEC 60598-1, as specified in Clause 4.14 of this document.

Portable luminaires designed for standing on a floor, and pendants, are supported during the test as in normal use.

Portable luminaires designed for standing on a table, and adjustable luminaires, are tested on or above a dull black painted board similar to that described in Annex D of IEC 60598-1.

In addition, for portable luminaires for indoor use designed for standing on a floor or table which overturn when placed in their normal position of use on a plane inclined at an angle of 15° to the horizontal, the test of 12.5.1 of Section 12 of IEC 60598-1 is made with the luminaire on a horizontal surface, in the most unfavourable of the overturned positions that may reasonably be expected in practice.

4.14 Resistance to dust and moisture

The provisions of Section 9 of IEC 60598-1 apply.

For luminaires with an IP classification greater than IP20, the order of the tests specified in Section 9 of IEC 60598-1 shall be as specified in Clause 4.13 of this document.

Portable luminaires for outdoor use shall be tested in the most unfavourable of the overturned positions likely to occur.

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4.15 Insulation resistance and electric strength

The provisions of Section 10 of IEC 60598-1 apply.

4.16 Resistance to heat, fire and tracking

The provisions of Section 13 of IEC 60598-1 apply.

Bibliography

IEC 60417, *Graphical symbols for use on equipment* (available at <http://www.graphical-symbols.info/equipment>)

IEC 60598-2-7:1982, *Luminaires – Part 2: Particular requirements – Section Seven: Portable luminaires for garden use*
