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SIST EN 60598-1:1998

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60598-1

May 1997

ICS 29.140.40

Supersedes EN 60598-1:1993 and its amendment

Descriptors: General requirements, luminaire, rated voltage, extra low-voltage, nominal current, flexible cable, flexible cord, temperature, capacitor, winding, ballast, switch, electric starter, cable, connector, flammable material, fire-resistant material, type test, electric earthing, protection against electric shock, resistance to dust, resistance to moisture, insulation resistance, electric strength, creepage distance, insulation clearance, thermal endurance test, resistance to heat, resistance to fire, resistance to tracking, electric terminal, marking

English version

Luminaire
Part 1: General requirements and tests
(IEC 598-1:1996, modified)

Luminaire

Partie 1: Prescriptions générales et
essais
(CEI 598-1:1996, modifiée)

Leuchten

Teil 1: Allgemeine Anforderungen und
Prüfungen
(IEC 598-1:1996, modifiziert)

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This European Standard was approved by CENELEC on 1996-07-02. 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

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Ref. No. EN 60598-1:1997 E

Foreword

The text of document 34D/382/FDIS, future amendment to IEC 598-1:1992, prepared by SC 34D, Luminaires, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote. Because this amendment was to be incorporated in a new edition of the IEC standard, CENELEC approved EN 60598-1 on 1996-07-02 incorporating those common modifications from the previous edition of EN 60598-1 which were not covered by the text of 34D/382/FDIS. The common modifications to IEC 598-1:1996 were prepared by the Technical Committee CENELEC TC 34Z, Luminaires and associated equipment.

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) 1997-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-12-01

For products which have complied with EN 60598-1:1993 and its amendment A1:1996 before 1997-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2002-12-01.

Attention is drawn to the fact that all parts 2 of EN 60598 relate to the latest edition of part 1 (see the reference "Sliding; latest edition" in the normative annexes ZA to all EN 60598-2).

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.

In this standard, A, B, C, D, E, F, P, ZA and ZB are normative and annexes J, K, L, M, N, Q and ZC are informative.

Annexes ZA, ZB and ZC have been added by CENELEC.



Endorsement notice

The text of the International Standard IEC 598-1:1996 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

- 3.2.12 Delete the note.
- 3.3.3 c) Delete the words "Except for wires belonging to fixed wiring,".
- 4.11.6 At the end of the paragraph commencing "Following completion of these tests...", add: "[the test voltage however being reduced to 1 500 V]".
- 5.2.2 In paragraph 1, replace "IEC 227 and 245" by "HD 21 S2 and HD 22 S2".

Delete paragraph 2.

Replace table 5.1 by:

Table 5.1 - Non detachable flexible cables or cords

	Rubber	PVC
Class 0 luminaires	H03RT-F	H03VH-H
Ordinary Class I luminaires	H03RT-F	H03VVH2-F H03VV-F
Ordinary Class II luminaires	H05RR-F	H03VVH2-F H03VV-F
Luminaires other than ordinary	H05RN-F	-
Portable rough service luminaires	H07RN-F	-

- 5.2.15 Replace the text of this subclause by:

Connecting leads [tails] of extra-low voltage d.c. supplied fluorescent luminaires where supplied as the means of connection of the luminaire to the supply shall be colour coded red to indicate positive and black to indicate negative.

- 12.4.2 c) Delete the words "Except for wires belonging to fixed wiring,".

Annex B In note 4, replace "this part 1" by "IEC 598-1:1996".

Annex ZA (normative)

Normative references to international publications
with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61-2 + supplements (mod)	1969	Lamp caps and holders together with gauges for the control of interchangeability and safety Part 2: Lampholders	EN 60061-2 + amendments	1993
IEC 61-3 + supplements (mod)	1969	Part 3: Gauges	EN 60061-3 + amendments	1993
IEC 65 (mod)	1985	Safety requirements for mains operated electronic and related apparatus for household and similar general use	EN 60065 ¹⁾ + corr. November 1993	1993
IEC 68-2-63	1991	Environmental testing Part 2: Test methods - Test Eg: Impact, spring hammer	EN 60068-2-63	1994
IEC 83	1975	Plugs and socket-outlets for domestic and similar general use - Standards	-	-
A1	1979		-	-
IEC 112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980
IEC 155	1993	Glow-starters for fluorescent lamps	EN 60155	1995
IEC 227 (mod)	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	HD 21	series
IEC 238 (mod)	1991	Edison screw lampholders	EN 60238 ²⁾ + corr. July	1992
A1	1993		A1	1995
A2	1995		A2	1995

1) EN 60065 includes A1:1987 + A2:1989 + A3:1992 to IEC 65.

2) EN 60238 includes corrigendum August 1992 to IEC 238.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 245 (mod)	series	Rubber insulated cables - Rated voltages up to and including 450/750 V	HD 22	series
IEC 320 (mod)	series	Appliance couplers for household and similar general purposes	EN 60320	series
IEC 357 (mod) + A1 (mod) A2 (mod) + A3 (mod) + A4 (mod) A5 A6 A7 A8	1982 1984 1985 1987 1989 1992 1993 1994 1995	Tungsten halogen lamps (non-vehicle)	EN 60357 A4 A5 ³⁾ A6 A7 A8	1988 1991 1993 1994 1994 1995
IEC 360	1987	Standard method of measurement of lamp cap temperature rise	EN 60360	1989
IEC 364-3 (mod)	1993	Electrical installations of buildings Part 3: Assessment of general characteristics	HD 384.3 S2	1995
A1 A2	1994 1995		- -	- -
IEC 364-7-702 (mod)	1983	Part 7: Requirements for special installations or locations Section 702: Swimming pools	HD 384.7.702 S1	1991
IEC 384-14	1993	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	-	-
IEC 400 (mod) A1 A2	1991 1993 1994	Lampholders for tubular fluorescent lamps and starterholders	EN 60400 ⁴⁾ + corr. March A1 ⁵⁾ A2	1992 1992 1994 1995
IEC 416	1988	General principles for the creation of graphical symbols for use on equipment	HD 571 S1	1990
IEC 417	1973	Graphical symbols for use on equipment Index, survey and compilation of the single sheets	HD 243 S12 ⁶⁾	1995

3) EN 60357/A5 includes corrigenda June 1992 + November 1992.

4) EN 60400 is superseded by EN 60400:1996, which is based on IEC 60400:1996.

5) EN 60400/A1 is superseded by EN 60400:1996/A1:1997, which is based on IEC 60400:1996/A1:1997.

6) HD 243 S12 includes supplements A:1974 to M:1994 to IEC 417.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 432-1 (mod)	1993	Safety specifications for incandescent lamps Part 1: Tungsten filament lamps for domestic and similar general lighting purposes	EN 60432-1 + corr. April	1994 1995
A1	1995		-	-
IEC 432-2 (mod)	1994	Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes	EN 60432-2 + corr. March	1994 1995
IEC 529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 570	1995	Electrical supply track systems for luminaires	EN 60570 + corr. August	1996 1996
IEC 598-2 (mod)	series	Luminaires Part 2: Particular requirements	EN 60598-2	series
IEC 598-2-4 (mod)	1979	Section 4: Portable general purpose luminaires	EN 60598-2-4 ⁷⁾	1989
A3	1990		A3	1993
IEC 630	1994	Maximum lamp outlines for incandescent lamps	-	-
IEC 634	1993	Heat test source (H.T.S.) lamps for carrying out heating tests on luminaires	EN 60634	1995
IEC 60662 + A2 + A3	1980 1987 1990	High-pressure sodium vapour lamps	EN 60662	1993
A4	1992		A4	1994
A5	1993		A5	1994
A6	1994		A6	1994
A7	1995		A7	1995
A8	1995		-	-
IEC 664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	HD 625.1 S1 + corr. November	1996 1996
IEC 684	series	Specification for flexible insulating sleeving	EN 60684 HD 523	series series
IEC 695-2-2	1991	Fire hazard testing Part 2: Test methods Section 2: Needle-flame test	EN 60695-2-2	1994

7) EN 60598-2-4 includes A1:1983 + A2:1987 to IEC 598-2-4.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 742 (mod)	1983	Isolating transformers and safety isolating transformers - Requirements	EN 60742 ⁸⁾	1995
IEC 838	1987	Miscellaneous lampholders	-	-
IEC 901	1987	Single-capped fluorescent lamps - Safety and performance requirements	EN 60901 ⁹⁾	1990
A1	1989		A1	1990
A2	1992		A2	1993
IEC 920	1990	Ballasts for tubular fluorescent lamps General and safety requirements	EN 60920	1991
A1	1993		A1	1993
A2	1995		A2	1996
IEC 922	1989	Ballasts for discharge lamps (excluding tubular fluorescent lamps) - General and safety requirements	EN 60922	1991
A2	1992		A2	1993
IEC 924	1990	D.C. supplied electronic ballasts for tubular fluorescent lamps - General and safety requirements	EN 60924	1991
A1	1993		A1	1994
IEC 972	1989	Classification and interpretation of new lighting products	-	-
A1	1991		-	-
IEC 989	1991	Separating transformers, autotransformers, variable transformers and reactors	-	-
IEC 1032	1990	Test probes to verify protection by enclosures	HD 601 S1	1991
IEC 1046	1993	D.C. or a.c. supplied electronic step-down convertors for filament lamps - General and safety requirements	EN 61046	1994
A1	1995		A1	1996
IEC 1058-1	1990	Switches for appliances Part 1: General requirements	EN 61058-1	1992
A1	1993		A1	1993
A2	1994		-	-
IEC 61167	1992	Metal halide lamps	EN 61167	1994
A1	1995		A1	1995
IEC 61184 (mod)	1993	Bayonet lampholders	EN 61184	1994

8) EN 60742 includes A1:1992 to IEC 742.

9) EN 60901 and its amendments are superseded by EN 60901:1996, which is based on IEC 901:1996.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 1195	1993	Double-capped fluorescent lamps Safety specifications	EN 61195	1994
IEC 61199	1993	Single-capped fluorescent lamps Safety specifications	EN 61199	1994
ISO 75-2	1993	Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite	EN ISO 75-2	1996
ISO 1891	1979	Bolts, screws, nuts and accessories Terminology and nomenclature	-	-
ISO 4046	1978	Paper, board, pulp and related terms Vocabulary	-	-

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Annex ZB (normative)**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. If it affects harmonization, it forms part of the European Standard or Harmonization Document.

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

- 2.2 If in the CENELEC countries the wiring rules do not allow luminaires of class 0, then luminaires shall not be classified according to the type of protection against electric shock provided, as class 0.

NOTE: In Austria, Belgium, Denmark, Germany, Finland, France, Greece, Ireland, Norway, Sweden and the United Kingdom, wiring rules do not allow any luminaire to be class 0. In Italy, wiring rules do not allow any luminaire to be class 0 except in special installations called "insulated installations".

3.3

Denmark

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Supply cords of class I luminaires, which are delivered without a plug, shall be provided with a visible tag with the following text:

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Ledere med grøn/gul isolation
må kun tilsluttes en klemme mærket



eller



If essential for the safety of the luminaire, the tag shall in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:

Fir tilslutning af the øvrige ledere,
se medfølgende vejledning.

Class I luminaires which, according to the exemption for Denmark in subclause 5.2.1, are delivered with a supply cord with a plug in accordance with Standard Sheets DKA 2-1a, DKA 2-1b, C 1b, C 2b, C 3b or C 4, shall either be provided with the above tag or the same information shall be given in an enclosed instruction. The text concerning conductors having green/yellow insulation shall be quoted word-for-word.

NOTE: "ø" may be replaced by "oe"; "æ" may be replaced by "ae".

3.3 Italy
(cont'd)

For luminaires of class 0, the manufacturer's instructions shall include the following warning:

"ATTENZIONE - QUESTO APPARECHIO E' IDONEO SOLO PER AMBIENTI ISOLATI"

4.5.1 Denmark

Socket-outlets intended for providing power to other appliances shall be in compliance with Section 107-2-D1, the Standard Sheets being applied as follows:

Class I Standard Sheet DK 1-3a

For class I luminaires, the earthing contact of the socket-outlet shall be electrically connected to the earthing terminal of the appliance.

Class II luminaires shall not be fitted with socket-outlets for providing power to other appliances.

EXEMPTION:

Socket-outlets supplied from isolation transformers (shaver supply units) and socket-outlets on outdoor luminaires may be in accordance with the requirement of Section 107-2-D1 for fixed socket-outlets.

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France <https://standards.iteh.ai/catalog/standards/sist/86bee595-82f0-4b87-94f1-fbc69028ba60/sist-en-60598-1-1998>

Socket-outlets 10/16 A intended for providing power to other appliances except those supplied by an isolating transformer shall be shuttered in accordance with standard sheet V of CEE Publication 7 and with clauses 9 and 20 of IEC 884-1.

5.2.1 Denmark

Supply cords on single-phase portable luminaires having a rated current not exceeding 10 A shall be provided with a plug according to the following table:

Class of luminaire		Plug	
		Section 107-2-D1 Standard Sheet	EN 50075 Standard Sheet
I	Protection against indirect contact required	DK 2-1a*	
	Earthing connection not required	DK 2-1a, DKA 2-1a, DKA 2-1b, C 1b, C 2b, C 3b, C 4	
II		DKA 2-1a, DKA 2-1b, C 1b, C 5, C 6	I
* Luminaires fitted with a socket-outlet for providing power to other appliances.			

- 5.2.1 (cont'd) For luminaires which are mainly used in locations where protection against indirect contact is required, see Section 10, § 17.

For luminaires having an appliance inlet, the plug on the supply cord shall comply with the above requirements. If other single-phase luminaires having a rated current not exceeding 10 A are provided with a supply cord with a plug, the plug shall comply with the above requirements.

EXEMPTION:

If single-phased fixed class I luminaires, intended for use in homes, and for which protection against indirect contact is required according to Section 10 of the Heavy Current Regulations, are provided with a plug, this plug may, until further notice, be in accordance with Standard Sheet DKA 2-1a, DKA 2-1b, C 1b, C 2b, C 3b or C 4, provided that the cord close to the plug is marked as required in § 3.3.

If multi-phase luminaires and single-phase luminaires having a rated current exceeding 10 A are provided with a supply cord with a plug, the plug shall comply with the following table:

Class of luminaire	Plug	
	Section 107-2-D1 Standard Sheet	Section 117 Standard Sheet
I	DK 6-1a	II
II	DK7.1a*	II*
* Earthing contact not connected.		

Finland and Sweden

For luminaires provided with non-detachable flexible cables and cords and a plug, the plug shall comply with the requirements of CEE Publication 7 and EN 50075, the Standard Sheets to be applied being as follows:

- Class I luminaires CEE 7, sheet IV or VII
- Class II luminaires CEE 7, sheet XVI (alt I only) or CEE 7, sheet XVII or EN 50075, sheet I

United Kingdom

Domestic luminaires intended for connection to a standard United Kingdom 13 A socket must be pre-fitted with an approved plug complying with BS 1363.

Cord sets for domestic luminaires for connection with an appliance inlet must be pre-fitted with an approved plug complying with BS 1363.

Plugs must be fitted with the correct fuse.

Annex ZC (informative)

A-deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

This European Standard falls under Directive 73/23/EEC.

NOTE (from CEN/CENELEC IR Part 2, 3.1.9): Where standards fall under EC Directives, it is the view of the Commission of the European Communities (OJ No C 59; 1982-03-09) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted except under the safeguard procedure provided for in the relevant Directive.

A-deviations in an EFTA-country are **valid instead** of the relevant provisions of the European Standard in that country until they have been removed.

<u>Clause</u>	<u>Deviation</u>
3.3.3 c), 4.7.5, 12.4.2 (table 12.2)	<p>Finland (Resolution No. 205/74, subclause 23.4)</p> <p>Sweden (Wiring Regulations ELSÄK-FS 1994:4 § 21b)</p> <p>The highest permissible temperature of the insulation of cables or cords belonging to the fixed wiring shall not at any place exceed 70 °C, unless they are covered by heat-resistant sleeves, when a temperature not exceeding 90 °C is permissible.</p> <p>https://standards.iteh.ai/catalog/standards/sist/86bee595-82f0-4b87-94f1-fbc69028ba60/sist-en-60598-1-1998</p>
12.4.2	<p>Norway (Regulations for Electrical Installations of Buildings etc. -FEB 1991 §§ 421, 424, 802 and § 523.0 Table 52A)</p> <p>(Table 12.1) The maximum temperature allowed on a 'normally flammable surface' and on 'objects illuminated by spotlights' is 80 °C. The maximum temperature allowed on wood, paper textile and the like is 80 °C.</p> <p>(Table 12.2) The highest permissible temperature of the insulation of the supply cable, i.e. cable or cords belonging to the fixed wiring, is 70 °C, unless each separate wire is covered with an adequate heat resistant sleeve with relevant electrical insulation and mechanical properties.</p>
13.3	<p>Denmark (Stærkstrømsbekendtgørelsen - Elektriske Installationer 1993, § 716.4)</p> <p>For luminaires installed in access routes, including staircaises, and escape routes of public and communal buildings, luminaire enclosures shall comply with the needle flame test of 13.3.1, but with the flame applied for 30 s, or the glow-wire test of 13.3.2, but with the glow-wire heated to 750 °C.</p>

13.3 **United Kingdom** (Approved document B of the United Kingdom Building Regulations)
(cont'd)

Particular fire protection requirements are listed in the above regulations.

13.3.2 **France** (Regulation on the safety against fire hazards in premises open to public and workers (clause EC4, subclause 2))

For luminaires installed in closed horizontal routes and stairs, a temperature of the glow-wire of 850 °C and an extinguishing time of 5 s are required.

In the other cases, if the area of the ceiling covered by luminaires is not too large, a temperature of the glow-wire of 750 °C and an extinguishing time of 5 s are required.

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