

BS EN 60598-2-24:2013



BSI Standards Publication

## Luminaires

Part 2-24: Particular requirements —  
Luminaires with limited surface temperatures

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### **National foreword**

This British Standard is the UK implementation of EN 60598-2-24:2013. It is identical to IEC 60598-2-24:2013. It supersedes BS EN 60598-2-24:1999, which will be withdrawn on 24 July 2016.

The UK participation in its preparation was entrusted by Technical Committee CPL/34, Lamps and Related Equipment, to Subcommittee CPL/34/4, Luminaires.

A list of organizations represented on this committee can be obtained on request to its secretary.

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EUROPEAN STANDARD  
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# EN 60598-2-24

August 2013

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Supersedes EN 60598-2-24:1998

English version

**Luminaire -  
Part 2-24: Particular requirements -  
Luminaire with limited surface temperatures  
(IEC 60598-2-24:2013)**

Luminaire -  
Partie 2-24: Exigences particulières -  
Luminaire avec surfaces à températures  
limitées  
(CEI 60598-2-24:2013)

Leuchten – Teil 2-24: Besondere  
Anforderungen – Leuchten mit begrenzter  
Oberflächentemperatur  
(IEC 60598-2-24:2013)

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## CENELEC

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 34D/1094/FDIS, future edition 2 of IEC 60598-2-24, prepared by 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 60598-2-24:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-04-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-07-24

This document supersedes EN 60598-2-24:1998.

EN 60598-2-24:2013 includes the following significant technical changes with respect to EN 60598-2-24:1998:

- a) change of required degree of protection from IP6X to IP4X to harmonize with the international wiring rules;
- b) temperature limits introduced for glass surface of any light source exposed to risk of dust.

This standard is to be read in conjunction with EN 60598-1, *Luminaires – Part 1: General requirements and tests*.

NOTE In this standard, the following print types are used:

- requirements: in roman type.
- *test specifications: in italic type.*
- notes: in small roman type.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

## Endorsement notice

The text of the International Standard IEC 60598-2-24:2013 was approved by CENELEC as a European Standard without any modification.

**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 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 60364-4-42	-	Low voltage electrical installations - Part 4-42: Protection for safety - Protection against thermal effects	HD 60364-4-42	-
IEC 60598-1	-	Luminaires - Part 1: General requirements and tests	EN 60598-1	-
ISO 4225	1994	Air quality - General aspects - Vocabulary	-	-

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## LUMINAIRES –

### Part 2-24: Particular requirements – Luminaires with limited surface temperatures

#### 24.1 Scope

This part of the IEC 60598 series specifies requirements for luminaires intended for use where the necessity of limited temperature on the outer surface exists, due to the risk of thermal effects, combustion or degradation of materials but where the risk of explosion in the atmosphere does not exist. The luminaires are for use with electric light sources on supply voltages not exceeding 1 000 V.

This standard specifically excludes requirements for luminaires for use in explosive gas atmospheres and explosive dust atmospheres.

#### 24.2 Normative references

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.

IEC 60364-4-42, *Low-voltage electrical installations – Part 4-42: Protection for safety – Protection against thermal effects*

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

ISO 4225:1994, *Air quality – General aspects – Vocabulary*

#### 24.3 General test requirements

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

#### 24.4 Terms and definitions

For the purposes of this document, the terms and definitions given in Section 1 of IEC 60598-1 apply, as well as the following apply.

##### 24.4.1

###### **dust**

small solid particles in the atmosphere which settle out under their own weight, but which may remain suspended in air for some time (includes dust and grit as defined in ISO 4225)

##### 24.4.2

###### **explosive gas atmosphere**

mixture with air, under atmospheric conditions, of flammable substances in the form of gas or vapour which, after ignition, permits self sustaining flame propagation

### 24.4.3

#### **explosive dust atmosphere**

a mixture with air, under atmospheric conditions, of flammable substances in the form of dust, fibres or flyings which, after ignition, permits self-sustaining propagation

[SOURCE: IEC 60050-426:2008, 426-01-08]

## 24.5 Classification of luminaires

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

Additionally luminaires complying with this section are classified suitable for use in locations specified in IEC 60364-4-42 as follows.

- a) For use in environments where no unusual accumulation of dust is expected.
- b) For use in environments where an accumulation of non-conductive dust on the luminaire may be expected.
- c) For use in environments where an accumulation of conductive dust on the luminaire may be expected.

## 24.6 Marking

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

**24.6.1** Luminaires shall be marked with the  symbol (see Figure 1). This marking shall be visible and meet the requirements of 3.2 c) of IEC 60598-1.



**Figure 1 – Symbol for luminaires with limited surface temperatures**

**24.6.2** From the manufacturers literature it shall be evident to which location the luminaire is intended in accordance with the luminaires classification as given in 24.5 of this standard.

## 24.7 Construction

The provisions of Section 4 of IEC 60598-1 apply, together with the requirements of 24.7.1 and 24.7.2 below.

**24.7.1** Luminaires shall be provided with an enclosure providing a degree of protection of at least IP4X or in the presence of dust, IP5X or in the presence of conductive dust, IP6X.

For certain locations the international wiring rules may require at least IP5X or IP6X (see IEC 60364-4-42).

*Compliance is checked by inspection.*



**24.7.2** Surfaces where dust may accumulate and all surfaces greater than 7,5 mm wide and non-vertical surfaces shall comply with the requirements of horizontal surfaces.

Vertical surfaces not complying with spacing requirements in 24.13 shall comply with the limits for horizontal surfaces.

*Compliance is checked by inspection.*

## **24.8 Creepage distances and clearances**

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

## **24.9 Provision for earthing**

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

## **24.10 Terminals and electrical connections**

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

## **24.11 External and internal wiring**


The provisions of Section 5 of IEC 60598-1 apply.

## **24.12 Protection against electric shock**

The provisions of Section 8 of IEC 60598-1 apply.


## **24.13 Endurance test and thermal test**

The provisions of Section 12 of IEC 60598-1 apply, together with the requirements of 24.13.1 to 24.13.3 below.

Luminaires with the  symbol shall be subjected to the relevant tests given in 12.4, 12.5, 12.6 and 12.7 of Section 12 of IEC 60598-1 after the test(s) given in 9.2 but before the test(s) given in 9.3 of Section 9 of IEC 60598-1 specified in 24.14 of this standard.

Where the gap between vertical surfaces is less than 30 mm, the temperature limit for horizontal surfaces shall apply.

### **24.13.1 Temperature limits – Normal operation**


For luminaires with the  symbol, a temperature of 90 °C on all horizontal surfaces of the luminaire exposed to the accumulation of dust shall not be exceeded, at 1,06 times the rated voltage and, on all vertical external surfaces, the maximum temperature shall not exceed 150 °C at 1,06 times the rated voltage.

If a luminaire has an outer surface likely to be positioned against part of a building (wall or similar), with a temperature higher than 90 °C, but not exceeding 150 °C, the luminaire shall be provided with mounting instructions cautioning against such positioning.


The temperature of any part of the glass surface of any light source shall not exceed 150 °C. Only applicable for light sources exposed to risk of dust.

NOTE Light sources in luminaires which are rated IP5X or less are expected to be exposed to risk of dust accumulation.


#### **24.13.2 Temperature limits – Abnormal operation**

For luminaires with the  symbol, the requirements of 12.5.1 of Section 12 of IEC 60598-1 and 24.13.1 above apply.

#### **24.13.3 Temperature limits – Fault conditions**

For luminaires with the  symbol, the requirements of 12.6 of Section 12 of IEC 60598-1 apply with the addition that temperatures on horizontal surfaces of the luminaire exposed to the accumulation of dust shall not exceed 115 °C. In addition the temperature of 24.13.1 above applies for all vertical external surfaces and the glass surfaces of the light source.

#### **24.14 Resistance to dust, solid objects and moisture**

The provisions of Section 9 of IEC 60598-1 apply. For luminaires with the  symbol, the order of tests specified in Section 9 of IEC 60598-1 shall be as specified in 24.13.

#### **24.15 Insulation resistance and electric strength**

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

#### **24.16 Resistance to heat, fire and tracking**

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

## Bibliography

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>).

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