



BSI Standards Publication

## Edison screw lampholders

---

## National foreword

This British Standard is the UK implementation of EN IEC 60238:2018/A11:2021. It is derived from IEC 60238:2018, incorporating IEC amendment A1:2017 and IEC amendment A2:2020. It supersedes BS EN IEC 60238:2018+A2:2021, which will be withdrawn on 6 October 2024.

The start and finish of text introduced or altered by IEC amendments A1:2017 and A2:2020 are indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A1** **A1**.

The text of CENELEC amendment A11:2021 has been provided in its entirety at the end of this document. BSI's policy of providing consolidated content remains unchanged; however, in the interest of expediency, in this instance BSI have chosen to collate the relevant content at the end of this document.

The UK participation in its preparation was entrusted to Technical Committee CPL/34/2, Lamp caps and holders.

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

### Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

This publication has been prepared under a mandate given to the European Standards Organizations by the European Commission and the European Free Trade Association. It is intended to support requirements of the EU legislation detailed in the European Foreword. A European Annex, usually Annex ZA or ZZ, describes how this publication relates to that EU legislation.

For the Great Britain market (England, Scotland and Wales), if UK Government has designated this publication for conformity with UKCA marking (or similar) legislation, it may contain an additional National Annex. Where such a National Annex exists, it shows the correlation between this publication and the relevant UK legislation. If there is no National Annex of this kind, the relevant Annex ZA or ZZ in the body of the European text will indicate the relationship to UK regulation applicable in Great Britain. References to EU legislation may need to be read in accordance with the UK designation and the applicable UK law. Further information on designated standards can be found at [www.bsigroup.com/standardsandregulation](http://www.bsigroup.com/standardsandregulation).

For the Northern Ireland market, UK law will continue to implement relevant EU law subject to periodic confirmation. Therefore Annex ZA/ZZ in the European text, and references to EU legislation, are still valid for this market.

UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of [www.gov.uk](http://www.gov.uk).

© The British Standards Institution 2022  
Published by BSI Standards Limited 2022

ISBN 978 0 539 17358 1

ICS 29.140.10

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2018.

#### **Amendments/corrigenda issued since publication**

Date	Text affected
31 October 2018	Implementation of IEC amendment 1:2017 with CENELEC endorsement A1:2018
31 October 2021	Implementation of IEC amendment 2:2020 with CENELEC endorsement A2:2021
31 March 2022	Implementation of CENELEC amendment A11:2021

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN IEC 60238:2018+A2**

October 2021

ICS 29.140.10

Supersedes EN 60238:2004

English Version

**Edison screw lampholders  
(IEC 60238:2016)**

Douilles à vis Edison pour lampes  
(IEC 60238:2016)

Lampenfassungen mit Edisongewinde  
(IEC 60238:2016)

This European Standard was approved by CENELEC on 2016-08-18. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## European foreword

The text of document 34B/1852/FDIS, future edition 9 of IEC 60238, prepared by SC 34B "Lamp caps and holders" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60238:2018.

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 2018-09-23
- latest date by which the national standards conflicting with the document have to be withdrawn 2021-03-23

This document supersedes EN 60238:2004.

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 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 60238:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60061	NOTE	Harmonized in EN 60061 series.
IEC 60061-4	NOTE	Harmonized as EN 60061-4.
IEC 60068-2-20	NOTE	Harmonized as EN 60068-2-20.
IEC 60335-1:2001	NOTE	Harmonized as EN 60335-1:2002 (modified).
IEC 60335-2-24:2002	NOTE	Harmonized as EN 60335-2-24:2003 (not modified).
IEC 60598	NOTE	Harmonized in EN 60598 series.
IEC 60664-1	NOTE	Harmonized as EN 60664-1.
IEC 60695-2-10	NOTE	Harmonized as EN 60695-2-10.

## European foreword to amendment A1

The text of document 34B/1887/FDIS, future edition 9 of IEC 60238:2016/A1:2017, prepared by IEC/SC 34B " Lamp caps and holders, of IEC technical committee 34: Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60238:2017/A1:2018.

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) 2019-02-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-08-10

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

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 Directives.

For the relationship with EU Directives see informative Annex ZZ, which is an integral part of this document.

## Endorsement notice

The text of the International Standard IEC 60238:2016/A1:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- |                  |      |   |
|------------------|------|---|
| IEC 60664-4:2005 | NOTE | Harmonized as EN 60664-4:2006 (not modified). |
| IEC 61347-1:2015 | NOTE | Harmonized as EN 61347-1:2015 (not modified). |

## **European foreword to amendment A2**

The text of document 34B/2029/CDV, future IEC 60238/A2, prepared by SC 34B "Lamp caps and holders" of IEC/TC 34 "Lighting" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60238:2018/A2:2021.

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) 2022-04-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-10-01

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

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

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

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

### **Endorsement notice**

The text of the International Standard IEC 60238:2016/A2:2020 was approved by CENELEC as a European Standard without any modification.

## CONTENTS

FOREWORD .....	4
<b>A<sub>2</sub></b> INTRODUCTION to Amendment 2 <b>A<sub>2</sub></b> .....	6
1 Scope .....	7
2 Normative references .....	8
3 Terms and definitions .....	9
4 General requirement.....	14
5 General conditions for tests .....	14
6 Standard ratings .....	15
7 Classification .....	16
8 Marking .....	17
9 Dimensions.....	19
10 Protection against electric shock .....	22
11 Terminals .....	24
12 Provision for earthing .....	28
13 Construction .....	29
14 Switched lampholders.....	34
15 Moisture resistance, insulation resistance and electric strength .....	35
16 Mechanical strength .....	37
17 Screws, current-carrying parts and connections.....	41
18 Creepage distances and clearances .....	43
19 Normal operation .....	48
20 General resistance to heat.....	49
21 Resistance to heat, fire and tracking.....	52
22 Resistance to excessive residual stresses (season cracking) and to rusting .....	54
Annex A (normative) Season cracking/corrosion test .....	75
Annex B (informative) Guidance for requirements in IEC 61058-1 applicable to switches in lampholders (see 14.2) .....	77
Annex C (informative) Guidance for special requirements in appliance standards – Household and similar electrical appliances .....	79
<b>A<sub>1</sub></b> Annex D (informative) Clauses containing new or more stringent requirements with respect to the previous edition <b>A<sub>1</sub></b> .....	81
Bibliography.....	82
Figure 1a –Nipple thread for lampholders: metric thread. Basic profile and design profile for the nut and for the screw.....	55
Figure 1b –Nipple thread for lampholders: ISO standard pipe thread. Basic profile and design profile for the nut and for the screw .....	56
Figure 2a – Gauges for metric thread for nipples .....	57
Figure 2b – Gauges for ISO standard pipe thread for nipples .....	58
Figure 3 – Gauge for holes for backplate lampholder screws .....	59
Figure 4 – Normal operation test apparatus .....	60
Figure 5 – Test caps for the test of Clause 18.....	61
Figure 6 – Torque apparatus.....	62



IEC 60238:2016+A2:2020  
© IEC 2020

Figure 7 – Tumbling barrel .....	63
Figure 8 – Impact-test apparatus .....	64
Figure 9 – Pressure apparatus .....	65
Figure 10 – Ball-pressure test apparatus.....	65
Figure 11 – Test cap for the tests of 15.4 and 20.3 .....	66
Figure 12 – Bending apparatus .....	67
Figure 13 – Test cap A and test cap B for lampholders E14 (2 of 2) .....	69
Figure 14 – Test cap for lampholders E27 .....	70
Figure 15 – Test cap for lampholders E40.....	71
Figure 16 – Standard test finger (according to IEC 60529).....	72
Figure 17 – Clarification of some definitions.....	73
Figure 18 – Preparation of specimens for the needle-flame test of 21.4 .....	74
Table 1 – Thickness of screw shells and contacts .....	20
Table 2 – Minimum effective screw lengths .....	21
Table 3 – Dimensions of threaded entries and set screws .....	22
Table 4 – Minimum dimensions of pillar-type terminals .....	26
Table 5 – Minimum dimensions of screw-type terminals .....	26
Table 6 – Pull and torque values .....	32
Table 7 – Insertion torque .....	34
Table 8 – Minimum and maximum removal torques .....	34
Table 9 – Test cap dimensions .....	38
Table 10 – Heights of fall .....	39
Table 11 – Maximum deformation values .....	41
Table 12 – Torque values .....	42
<b>A1</b> Table 13a – Minimum distances for AC sinusoidal voltages up to 30 kHz – Impulse withstand category II.....	45
Table 13b – Minimum distances for AC sinusoidal voltages up to 30 kHz – Impulse withstand category III.....	46
Table 14 – Minimum distances for ignition pulse voltages or equivalent peak voltages $U_p$ <b>A1</b> .....	48
Table 15 – Heating cabinet temperatures.....	51
Table A.1 – pH adjustment.....	75

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

**EDISON SCREW LAMPHOLDERS****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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60238 has been prepared by subcommittee 34B: Lamp caps and holders, of IEC technical committee 34: Lamps and related equipment.

This ninth edition cancels and replaces the eighth edition published in 2004, Amendment 1: 2008 and Amendment 2:2011. This edition constitutes a technical revision.

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

- a) Addition of a pull test for certain E5 and E10 lampholders.
- b) Annex D listing amended requirements/clauses which require products to be retested.

IEC 60238:2016+A2:2020  
© IEC 2020

The text of this standard is based on the following documents:

FDIS	Report on voting
34B/1852/FDIS	34B/1860/RVD

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

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

In this standard, the following print types are used:

– *compliance statements: in italic type.*

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

## **A<sub>2</sub>** INTRODUCTION to Amendment 2

Some changes and corrections needed for IEC 60238 became obvious during the work relating to the consolidated Edition 9.1 of IEC 60238.

### Change 1:

Actual lamp holder safety standards require a ball pressure test in line with IEC 60695-10-2 in sections "Resistance to heat, fire and tracking". Within this test there is an alternative depth indentation method described for the calculation of the indentation diameter.

This alternative calculation option was removed from the latest edition of IEC 60695-10-2 dated 2014 and during its meeting held in Sydney in 2018, SC 34B/WG1 agreed to delete the alternative method as well from IEC 60238.

### Change 2:

Based on IEC 60664-1:2007, 4.8.1.5 "Non tracking materials":

"For glass, ceramics or other inorganic insulating materials which do not track, creepage distances need not be greater than their associated clearance for the purpose of insulation coordination. The dimensions of Table F.2 for inhomogeneous field conditions are appropriate."

This is not completely reflected in TC 34 standards as revised recently. For applications with ELV it is of high importance whether the creepage distance shall be 0,6 mm or may be 0,2 mm in the case where inorganic insulating material is used.

### Correction

In Amendment 1 to IEC 60238 Edition 9, a complete paragraph was deleted by accident. This was corrected with the publication of a corrigendum to Amendment 1, however an editorial correction needs to be made to the references to previous items, changed to table footnotes "a" and "d", as the referenced text was included in Tables 13a and 13b. **A<sub>2</sub>**

## EDISON SCREW LAMPHOLDERS

### 1 Scope

This International Standard applies to lampholders with Edison thread E14, E27 and E40, designed for connection to the supply of lamps and semi-luminaires<sup>1</sup> only.

It also applies to switched-lampholders for use in AC circuits only, where the working voltage does not exceed 250 V r.m.s.

This standard also applies to lampholders with Edison thread E5 designed for connection to the supply mains of series connected lamps, with a working voltage not exceeding 25 V, to be used indoors, and to lampholders with Edison thread E10 designed for connection to the supply mains of series connected lamps, with a working voltage not exceeding 60 V, to be used indoors or outdoors. It also applies to lampholders E10 for building-in, for the connection of single lamps to the supply. These lampholders are not intended for retail sale.

As far as it reasonably applies, this standard also covers lampholders other than lampholders with Edison thread designed for connection of series-connected lamps to the supply.

NOTE This type of lampholder is for example used in Christmas tree lighting chains.

As far as it reasonably applies, this standard also covers adapters.

This standard also covers lampholders which are, wholly or partly, integral with a luminaire or intended to be built into appliances. It covers the requirements for the lampholder only. For all other requirements, such as protection against electric shock in the area of the terminals or of the lamp cap, the requirements of the relevant appliance standard are observed and tested after building into the appropriate equipment, when that equipment is tested according to its own standard. Such lampholders as well as lampholders provided with a snap-on outer shell, for use by luminaire manufacturers only, are not for retail sale.

This standard applies to lampholders to be used indoors or outdoors in residential as well as in industrial lighting installations. It also applies to candle lampholders. In locations where special conditions prevail, as for street lighting, on board ships, in vehicles and in hazardous locations, for example where explosions are liable to occur, special constructions may be required.

This standard does not apply to three-light lampholders E26d.

This standard is based on the following data relative to lamps for general lighting service:

- caps E14 are used for lamps with a current not exceeding 2 A;
- caps E27 are used for lamps with a current not exceeding 4 A;
- caps E40 are used for lamps with a current not exceeding 16 A, or 32 A if the nominal voltage of the supply does not exceed 130 V (see 5.5 and 6.3).

Where lampholders are used in luminaires, their maximum operating temperatures are specified in IEC 60598.

<sup>1</sup> Requirements for lampholders suitable for semi-luminaires are under consideration.