

**(istoveten EN 62094-1:2003)**

Indicator light units for household and similar fixed-electrical installations - Part 1:  
General requirements (IEC 62094-1:2002)

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EUROPEAN STANDARD

**EN 62094-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English version

**Indicator light units for household  
and similar fixed-electrical installations  
Part 1: General requirements  
(IEC 62094-1:2002)**

Voyants lumineux pour installations  
électriques fixes domestiques  
et analogues  
Partie 1: Prescriptions générales  
(CEI 62094-1:2002)

Anzeigeleuchten für Haushalt  
und ähnliche ortsfeste elektrische  
Installationen  
Teil 1: Allgemeine Anforderungen  
(IEC 62094-1:2002)

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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.

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**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 23B/679/FDIS, future edition 1 of IEC 62094-1, prepared by SC 23B, Plugs, socket-outlets and switches, of IEC TC 23, Electrical accessories, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62094-1 on 2002-12-01.

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) 2003-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-12-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex ZA is normative.  
Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62094-1:2002 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 60417-1	NOTE	Harmonized as EN 60417-1:1999 (not modified).
IEC 60598	NOTE	Harmonized in EN 60598 series (modified).
IEC 60999-1	NOTE	Harmonized as EN 60999-1:2000 (not modified).

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## 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 60061 (mod)	Series	Lamp caps and holders together with gauges for the control of interchangeability and safety	EN 60061	Series
IEC 60112	- <sup>1)</sup>	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980 <sup>2)</sup>
IEC 60212	- <sup>1)</sup>	Standard conditions for use prior to and during the testing of solid electrical insulating materials	HD 437 S1	1984 <sup>2)</sup>
IEC 60529	- <sup>1)</sup>	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 <sup>2)</sup> 1993
IEC 60695-2-10	2000	Fire hazard testing Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2001
IEC 60695-2-11	2000	Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001
IEC 60998 (mod)	Series	Connecting devices for low-voltage circuits for household and similar purposes	EN 60998	Series
IEC 61032	1997	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	1998

1) Undated reference.

2) Valid edition at date of issue.

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**Voyants lumineux pour installations électriques  
fixes domestiques et analogues –**

**Partie 1:  
Prescriptions générales**

iTeh STANDARD PREVIEW

**Indicator light units for household  
and similar fixed-electrical installations –**

SIST EN 62094-1:2004

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**Part 1:  
General requirements**

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## INDICATOR LIGHT UNITS FOR HOUSEHOLD AND SIMILAR FIXED-ELECTRICAL INSTALLATIONS –

### Part 1: General requirements

#### FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62094 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

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

FDIS	Report on voting
23B/679/FDIS	23B/685/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 3.

The committee has decided that the contents of this publication will remain unchanged until 2005-12. At this date, the publication will be

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

# INDICATOR LIGHT UNITS FOR HOUSEHOLD AND SIMILAR FIXED-ELECTRICAL INSTALLATIONS –

## Part 1: General requirements

### 1 Scope

This International Standard applies to stand-alone indicator light units intended to give a visible signal. They are designed for a.c. only with a rated voltage not exceeding 440 V and a rated power not exceeding 10 W, for household and similar fixed-electrical installations, either indoors or outdoors.

NOTE 1 Indicator light units are not intended for lighting as a luminaire (see IEC 60598).

This standard does not apply to pilot lights incorporated in products complying with their own standards which are tested as part of that product.

The standard also applies to boxes for indicator light units, with the exception of flush-mounting boxes (according to IEC 60670) for flush-type indicator light units.

Indicator light units complying with this standard are suitable for use at ambient temperatures not normally exceeding 25 °C, but occasionally reaching 35 °C.

In locations where special conditions prevail, as in ships, vehicles and the like and in hazardous locations, for example where explosions are liable to occur, special constructions may be required.

NOTE 2 LEDs and lamps are not considered as indicator light units, but as components.

### 2 Normative references

The following referenced documents are indispensable for the application 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 60061 (all parts), *Lamp caps and holders together with gauges for the control of interchangeability and safety*

IEC 60112, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions*

IEC 60212, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60695-2-10:2000, *Fire hazard testing – Part 2-10: Glowing/hot wire based test methods – Glow wire apparatus and common test procedure*

IEC 60695-2-11:2000, *Fire hazard testing – Part 2-11: Glowing/hot wire based test methods – Glow wire flammability test method for end-products*

IEC 60998 (all parts), *Connecting devices for low-voltage circuits for household and similar purposes*

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

### 3 Definitions

For the purposes of this standard the following definitions apply.

NOTE Where the terms “voltage” and “current” are used, they imply r.m.s. values unless otherwise specified.

#### 3.1

##### **indicator light unit**

device equipped with terminals or terminations (such as connecting leads), designed to give a visible signal by light emission, not designed for lighting as a luminaire

#### 3.2

##### **terminal with screw clamping**

terminal intended for the connection, by clamping only, of external rigid or flexible conductors

#### 3.3

##### **pillar terminal**

terminal with screw clamping in which the conductor is inserted into the hole or cavity, where it is clamped under the end of the screw or screws. The clamping pressure may be applied directly by the end of the screw or through an intermediate clamping member to which pressure is applied by the end of the screw

NOTE Examples of pillar terminals are shown in Figure 1.

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#### 3.4

##### **screw terminal**

terminal with screw clamping in which the conductor is clamped under the head of the screw. The clamping pressure may be applied directly to the head of the screw or through an intermediate part, such as a washer, clamping plate or anti-spread device

NOTE Examples of screw terminals are shown in Figure 2.

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#### 3.5

##### **stud terminal**

terminal with screw clamping in which the conductor is clamped under a nut. The clamping pressure may be applied directly by a suitably shaped nut or through an intermediate part, such as a washer, clamping plate or anti-spread device

NOTE Examples of stud terminals are shown in Figure 2.

#### 3.6

##### **mantle terminal**

terminal with screw clamping in which the conductor is clamped against the base of a slot in a threaded stud by means of a nut. The conductor is clamped against the base of the slot by a suitably shaped washer under the nut, by a central peg if the nut is a cap nut, or by equally effective means for transmitting the pressure from the nut to the conductor within the slot

NOTE Examples of mantle terminals are shown in Figure 3.

### 3.7

#### **screwless terminal**

connecting device for the connection and subsequent disconnection of a rigid (solid or stranded) or flexible conductor or the interconnection of two conductors capable of being dismantled, the connection being made, directly or indirectly, by means of springs, parts of angled, eccentric or conical form, etc, without special preparation of the conductor concerned, other than removal of insulation

### 3.8

#### **thread-forming screw**

tapping screw having an uninterrupted thread which, by screwing in, forms a thread by displacing material

NOTE An example of a thread-forming screw is shown in Figure 4.

### 3.9

#### **thread-cutting screw**

tapping screw having an interrupted thread which, by screwing in, forms a thread by removing material

NOTE An example of a thread-cutting screw is shown in Figure 5.

### 3.10

#### **base**

part of the indicator light unit retaining current-carrying parts and the mechanism if any, in position

### 3.11

#### **rated voltage**

voltage assigned to the indicator light unit by the manufacturer

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### 3.12

#### **rated power**

power of the indicator light unit equipped with the lamp(s) assigned by the manufacturer

## 4 General requirements

Indicator light units and boxes shall be so designed and constructed that, in normal use, their performance is reliable and without danger to the user or the surroundings.

*Compliance is checked by meeting all the relevant requirements and tests specified.*

## 5 General notes on tests

**5.1** *Tests according to this standard are type tests.*

**5.2** *Unless otherwise specified, the specimens are tested as delivered and under normal conditions of use.*

*Indicator light units intended to be installed in dedicated boxes are tested with their corresponding boxes.*

**5.3** *Unless otherwise specified, the tests are carried out in the order of the clauses, at an ambient temperature between 15 °C and 35 °C.*

*In case of doubt, the tests are made at an ambient temperature of (20 ± 5) °C.*

**5.4** For indicator light units which are marked with one rated voltage and one rated power, nine specimens are necessary. Three specimens are subjected to all the relevant tests except the tests of Clause 21, where another three specimens are used. For the test of 21.2, three additional specimens may be required.

*For the tests of 12.3.2, three additional specimens are necessary.*

*For the tests of 12.3.11, additional specimens having in total at least five screwless terminals are required.*

*For the tests of 12.3.12, three additional specimens are necessary; in each specimen, one clamping unit is tested.*

**5.5** The specimens are submitted to all the relevant tests and the requirements are satisfied if all the tests are met.

*If one specimen does not satisfy a test due to an assembly or a manufacturing fault, that test and any preceding one which may have influenced the results of the test shall be repeated and also the tests which follow shall be made in the required sequence on another full set of specimens, all of which shall comply with the requirements.*

NOTE The applicant may submit, together with the number of specimens specified in 5.4 an additional set of specimens which may be required, should one specimen fail. The testing station will then, without further request, test additional specimens and will reject only if a further failure occurs. If the additional set of specimens is not submitted at the same time, the failure of one specimen will entail rejection.

## 6 Ratings

**6.1** Indicator light units shall preferably have rated voltages of 6 V, 12 V, 24 V, 48 V, 130 V, 230 V, 250 V, 277 V, 380 V, 400 V, 415 V and 440 V.

**6.2** Indicator light units shall have rated power not exceeding 10 W.

*Compliance with the requirements of 6.1 and 6.2 is checked by inspection of the marking.*

**6.3** Indicator light units shall preferably have a degree of protection IP20, IP40, IP44, IP54 or IP55.

## 7 Classification

Indicator light units are classified as follows.

**7.1** According to the degree of protection against access to hazardous parts and against harmful effects due to the ingress of solid foreign objects:

- IP2X: indicator light units protected against access to hazardous parts with a finger and against harmful effects due to ingress of solid foreign objects of 12,5 mm diameter and greater;
- IP4X: indicator light units protected against access to hazardous parts with a wire and against harmful effects due to ingress of solid foreign objects of 1,0 mm diameter and greater;
- IP5X: indicator light units protected against access to hazardous parts with a wire and protected against dust.

**7.2** According to the degree of protection against harmful effects due to the ingress of water:

- IPX0: indicator light units not protected against ingress of water;
- IPX4: indicator light units protected against splashing water;
- IPX5: indicator light units protected against water jets.

NOTE For an explanation of IP codes see IEC 60529.

**7.3** According to the method of mounting the indicator light units:

- surface-type;
- flush-type;
- semi flush-type;
- panel-type;
- architrave-type.

**7.4** According to the method of installation, as a consequence of the design of the indicator light units:

- indicator light units where the cover or cover plate can be removed without displacement of the conductors (design A);
- indicator light units where the cover or cover plate cannot be removed without displacement of the conductors (design B).

NOTE If an indicator light unit has a base (main part) which cannot be separated from the cover or cover plate, and requires a supplementary plate to meet the standard, which can be removed for redecorating the mounting surface (e.g. wall, ceiling, etc.) without displacement of the conductors, it is considered to be of design A, provided the supplementary plate meets the requirements specified for covers and cover plates.

**7.5** According to the type of terminals or terminations:

- indicator light units with screw-type terminals;
- indicator light units with screwless terminals for rigid conductors only;
- indicator light units with screwless terminals for rigid and flexible conductors;
- indicator light units without terminals equipped with connecting leads.

**7.6** According to the possibility of changing the light source:

- with a tool;
- without a tool;
- not possible.

**8 Marking****8.1** Indicator light units shall be marked with:

- rated voltages in volts;
- symbol for nature of supply;
- manufacturer's or responsible vendor's name, trade mark or identification mark;
- type reference, which may be a catalogue number;
- first characteristic numeral for the degree of protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects, if declared higher than 2, in which case the second characteristic numeral shall also be marked;