

Signs and luminous-discharge-tube installations operating from a no-load rated output voltage exceeding 1 kV but not exceeding 10 kV

The European Standard EN 50107:1998 has the status of a
British Standard

ICS 29.140.30

National foreword

This British Standard is the English language version of EN 50107:1998. The foreword of the EN makes reference to the date of withdrawal, dow, of the relevant national standard. In this case the relevant national standard is BS 559:1991. BS EN 50107:1998 partially supersedes BS 559:1991. BS 559:1991 has also been partially superseded by BS 559:1998 which specifies requirements for the construction and installation of signs and luminous-discharge-tube installations whether used for publicity, decorative or general purposes, either for internal or external use, additional to those given in BS EN 50107.

The UK participation in its preparation was entrusted by Technical Committee CPL/34, Lamps and related equipment, to Subcommittee CPL/34/11, Electric signs, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Summary of pages

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English version

Signs and luminous-discharge-tube installations operating from a no-load rated output voltage exceeding 1 kV but not exceeding 10 kV

Installations d'enseignes et de tubes lumineux à décharge fonctionnant à une tension de sortie à vide assignée supérieure à 1 kV mais ne dépassant pas 10 kV

Leuchtröhrengeräte und Leuchtröhrenanlagen mit einer Leerspannung über 1 kV aber nicht über 10 kV

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

This European Standard was prepared by CENELEC BTTF 60-2, Electrical discharge lamp installations. The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50107 on 1997-07-01.

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) 1998-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-09-01

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1 Scope

This European Standard specifies the requirements and method of installation for signs and luminous-discharge-tube installations operating from a no-load rated output voltage exceeding 1 000 V but not exceeding 10 000 V, including the electrical components and wiring.

The standard covers installations used for publicity, decorative or general lighting purposes, either for external or internal use. Such signs or luminous-discharge-tube installations may be either fixed or portable supplied from a low-voltage (LV) or extra-low-voltage (ELV) source by means of a transformer, inverter or converter.

NOTE Although the requirements are not specified in this standard, attention is drawn to the need for an effective maintenance programme to be carried out on all signs or luminous-discharge-tube installations. The inspection and testing requirements included in any maintenance programme should closely follow those specified in clause 18 of this standard.

2 Normative references

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 the European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50143, *Cables for signs and luminous-discharge-tube installations operating from a no-load rated output voltage exceeding 1 000 V but not exceeding 10 000 V.*

EN 55015, *Limits and methods of measurement of radio interference characteristics of fluorescent lamps and luminaires.*

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

EN 61000-3-2, *Electromagnetic compatibility (EMC) — Part 3: Limits — Section 2: Limits for harmonic current emissions (equipment input current not exceeding 16 A/phase).*

EN 60598-1, *Luminaires — Part 1: General requirements and tests.*

EN 61050, *Transformers for tubular discharge lamps having a no-load output voltage exceeding 1 000 V (generally called neon-transformers). General and safety requirements.*

EN 61547, *Equipment for general lighting purposes. EMC immunity requirements.*

HD 384, *Electrical installations of buildings.*

ISO 3864, *Safety colours and safety signs.*

3 Definitions

For the purposes of this European Standard, the definitions given in IEC 50 (IEV) apply, together with the following.

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

3.1

luminous-discharge tube

any tube, or other vessel or device, which is constructed of translucent material, hermetically sealed, and designed for the emission of light arising from the passage of an electric current through a gas or vapour contained within it

NOTE The tube may be with or without a fluorescent coating.

3.2

no-load rated output voltage

maximum rated voltage between the terminals of the output winding(s) of the transformer connected to the rated supply voltage at rated frequency, with no load on the output circuit. It is the peak value divided by the square root of 2

3.3

creepage distance

the shortest path between two conductive parts or between a conductive part and the bounding surface of the installation, measured along the surface of the insulating material

NOTE The bounding surface of the installation is the inner surface of the enclosure, considered as though a metal foil were pressed into contact with all interior surfaces of insulating material.

3.4

clearance

the shortest distance between two conductive parts or between a conductive part and the bounding surface of the installation, measured through the air

NOTE See note to 3.3.

3.5

transformer

a unit for the conversion of an a.c. supply at one voltage and frequency to an a.c. supply at a different voltage and the same frequency

NOTE The high output impedance of most transformers designed for cold-cathode discharge tubes allows the characteristics of transformer and current-limiting components to be combined in one unit.

3.6

inverter

an electric energy transducer that converts direct current to alternating current

3.7

convertor

a unit for the electronic conversion of an a.c. supply at one frequency to an a.c. supply at another frequency

NOTE The voltage may or may not be altered during the conversion.

3.8

insulating sleeve

insulation designed to be placed over the exposed high-voltage connections at tube electrodes or over cable-end insulators

3.9

installer

the person, qualified in sign installation practice, who takes responsibility for the installation and its testing in accordance with this standard

3.10

earth-leakage protective device

a device which will remove the output voltage from a transformer(s), inverter(s) or convertor(s) in the event of a short circuit between any part of the secondary high voltage circuit and earth

NOTE The device may be in two parts, a sensor and a protective switch (see 3.12 and 3.13), or may be combined in one unit.

3.11

open-circuit protective device

a device which will remove the output voltage from a transformer(s), inverter(s) or convertor(s) in the event of an interruption of the secondary high voltage circuit

NOTE The device may be in two parts, a sensor and a protective switch (see 3.12 and 3.13), or may be combined in one unit.

3.12

sensor

that part of a protective device which detects the presence of a secondary earth fault and/or an open circuit condition and provides a signal to operate a protective switch

3.13

protective switch

that part of a protective device which disconnects the mains supply to a transformer(s), inverter(s) or convertor(s) or otherwise removes the output power. It is operated by an electrical signal obtained from a sensor

3.14

live part

a conductor or conductive part intended to be energized in normal use, including the neutral conductor but, by convention, not a PEN conductor

3.15

input end (low-voltage circuit)

the part of the device between the point at which electrical energy is supplied to an installation and the input terminals of the transformer, convertor or inverter

3.16

output end (lamp circuit)

the part of the device between the output terminals of the transformer, convertor or inverter and the discharge tubes inclusive

3.17

arm's reach

a zone extending from any point on a surface where persons usually stand or move about to the limits which a person can reach with the hand in any direction without assistance

NOTE This zone of accessibility is shown in Figure 1 in which the values refer to bare hands without any assistance, e.g. from tools or from a ladder.

3.18

outdoor sites

sites where all or part of a sign or luminous-discharge-tube installation or its components are situated out of doors and are subject to the effects of weather

3.19

dry rooms and places

rooms or places where condensation does not usually occur or the air is not saturated with moisture

3.20

damp and wet rooms and places

rooms or places where the safety of the sign or luminous-discharge-tube installation may be affected by humidity, condensation, chemical or similar influences

3.21

small portable signs

small signs which can easily be moved from one place to another; which are supplied with an integral transformer, inverter or convertor, together with a flexible mains supply lead and plug; and which are intended to be installed and connected by the customer to a socket outlet of the mains supply

3.22

flasher

a device for automatically switching one or more lamp circuits on and off continuously. The sequence of switching of the various lamp circuits may be suitably arranged to provide the impression of movement and other animated effects