

Starting devices (other than glow starters) — Performance requirements

This European Standard EN 60927:1990 has the status of a
British Standard

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National foreword

This British Standard has been prepared under the direction of the Electrotechnical Sector Board. It is the English language version of EN 60927 and its amendments A1 and A2 *Starting devices (other than glow starters) — Performance requirements*, published by the European Committee for Electrotechnical Standardization (CENELEC) and is identical with IEC 927:1988 (modified) and its amendments 1:1990 and 2:1995, published by the International Electrotechnical Commission (IEC).

The foreword and preface of IEC 927:1988, Amendment 1:1990 and Amendment 2:1995 have been quoted in National appendix NA.

The foreword of the EN makes reference to “date of withdrawal (dow) of conflicting national standards” as “1996-07-01”. In this case the relevant national standard is BS EN 60927 but the date of withdrawal relates only to those parts of the British Standard subject to amendment A2. Certificates and marks will not be awarded after this date with respect to the British Standard not incorporating amendment A2. They will be awarded only to the amended British Standard. However, such certificates and marks already awarded with respect to the British Standard not incorporating amendment A2 may continue to apply for production until 2001-07-01.

Annexes designated “normative” are part of the body of the standard. Annexes designated “informative” are given for information only. National appendices are designated “informative”.

Cross-references. Details of International Standards quoted in this British Standard for which there is an identical or technically equivalent British Standard are given in National appendix NC.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 24, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

English version

Starting devices (other than glow starters) Performance requirements

(includes amendments A1:1991 + A2:1995)
(IEC 927:1988 + Corrigendum December 1989 + A1:1990 + A2:1995)

Dispositifs d'amorçage (autres que starters à lueur)
Prescriptions de performances
(inclut les amendements A1:1991 + A2:1995)
(CEI 927:1988 + Corrigendum décembre 1989 + A1:1990 + A2:1995)

Startgeräte (andere als Glimmstarter)
Anforderungen an die Arbeitsweise
(enthält Änderungen A1:1991 + A2:1995)
(IEC 927:1988 + Korrigendum Dezember 1989 + A1:1990 + A2:1995)

This European Standard was approved by CENELEC on 5 March 1990. 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

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

Foreword

The CENELEC Questionnaire Procedure, performed for finding out whether or not IEC 927:1988 could be accepted without textual changes, has shown that no CENELEC common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote.

This text, together with the relevant corrigendum of December 1989, was approved by CENELEC as EN 60927:1990 on 5 March 1990.

The following dates were fixed:

- latest date of announcement of the EN at national level (doa) 1990-09-01
- latest date of publication of an identical national standard (dop) 1991-03-01
- latest date of withdrawal of conflicting national standards (dow) 1991-03-01

Annexes designated “normative” are part of the body of the standard. In this standard, Annex ZA is normative.

For products which have complied with the relevant national standard before 1991-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1996-03-01.

Endorsement notice

The text of the International Standard 927:1988 and its corrigendum of December 1989 was approved by CENELEC as a European Standard without any modification.

Foreword to amendment A1

Following a decision taken by 63 BT, amendment 1:1990 to the International Standard IEC 927:1988 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in September 1990 for acceptance as an amendment to the European Standard.

The reference document was approved by CENELEC as amendment A1 to EN 60927 on 1 May 1991 (confirmed by 68 BT).

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1992-06-01
- latest date of withdrawal of conflicting national standards (dow) 1992-06-01

For products which have complied with the relevant national standard before 1992-06-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1997-06-01.

Endorsement notice

The text of amendment 1:1990 to the International Standard IEC 927:1988 was approved by CENELEC as an amendment to the European Standard without any modification.

Foreword to amendment A2

The text of document 34C/299/DIS, future amendment 2 to IEC 927:1988, prepared by SC 34C, Auxiliaries for discharge lamps, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60927:1990 on 1995-09-20.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-07-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-07-01

For products which have complied with EN 60927:1990 and its amendment A1:1991 before 1996-07-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2001-07-01.

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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Section 1. General requirements

1 Scope

This standard specifies performance requirements for starting devices (starters and ignitors) for tubular fluorescent and other discharge lamps for use on a.c. supplies up to 1 000 V at 50 Hz or 60 Hz, which produce starting pulses not greater than 5 kV. It should be read in conjunction with IEC Publication 926.

NOTE All glow starters for fluorescent and other discharge lamps including thermal relay/cut-outs will be included in IEC Publication 155.

2 Definitions

The definitions of IEC Publication 926 apply, together with the following:

2.1

starter with mechanical switching element

a starter which provides cathode pre-heating current and lamp starting pulse(s) by mechanical means (e.g. thermal or magnetic)

2.2

starter with electronic switching element

a starter which provides cathode pre-heating current and lamp starting voltage(s) or pulse(s) by electronic means and contains no moving parts

2.3

deactivated lamp

a lamp in which one or both cathodes are deprived of emitting material but neither of which is broken

2.4

non-re-operating level

a reduced level of voltage and/or current at which a starting device must not re-operate after the completion of the starting cycle, and the lamp is operating normally

2.5

maximum abnormal current

the value of continuous r.m.s. current through the ballast which shall not be exceeded at the end of the starting cycle when the circuit is in an abnormal condition (e.g. deactivated lamp, or lamp that has been removed)

2.6

starting aid

a starting aid can be either a conductive strip affixed to the outer surface of a lamp, or a conductive plate which is placed within an appropriate distance from a lamp

a starting aid can only be effective when it has an adequate potential difference from one end of the lamp

2.7

maximum case temperature ($t_c + X$) under abnormal conditions

maximum allowable case temperature of the ignitor under abnormal conditions with metal halide lamps. The value of ($t_c + X$) is declared by the manufacturer

3 General requirements for tests

3.1 Only requirements for type tests are included.

Unless otherwise specified, the tests shall be made at an ambient temperature between 10 °C and 30 °C.

The tests shall be carried out in the order of the clauses of this standard.

The following numbers of samples shall be submitted:

— Six samples of starters as defined in Sub-clauses 2.1 and 2.2.

— Two samples of ignitors (where appropriate, together with those circuit components which are necessary to carry out the tests).

3.2 Supply voltage

The total harmonic content of the supply voltage shall not exceed 3 %, the harmonic content being defined as the root-mean-square (r.m.s.) summation of the individual harmonic components, using the fundamental as 100 %.

Care shall be taken that this applies under all conditions that occur during the measurement.

NOTE This implies that the source of supply will have sufficient power and that the supply circuit has sufficiently low impedance at supply frequency and impulse frequency compared with the ballast impedance. The correct impedance at impulse frequency can be obtained by connecting a 2 µF (approximately) capacitor in parallel with the source.

3.3 All starting devices specified in this standard shall meet the requirements of IEC Publication 926.

4 Marking

The marking requirements of IEC Publication 926 shall apply, together with the following, to be either clearly marked on the starting device or made available in the manufacturer's catalogue, or the like.

a) The manufacturer shall declare the type of switching element as defined in Sub-clauses 2.1 and 2.2.

b) The manufacturer shall declare the maximum load capacitance for satisfactory operation of the ignitor.

c) The manufacturer shall declare the allowable maximum case temperature under abnormal conditions ($t_c + X$) of the ignitor.