

**AC and/or DC-supplied electronic control gear for
tubular fluorescent lamps - Performance requirements**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 60929:2011 sisaldab Euroopa standardi EN 60929:2011 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 29.07.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 01.07.2011.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 60929:2011 consists of the English text of the European standard EN 60929:2011.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 29.07.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 01.07.2011.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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Inglisekeelsed võtmesõnad: a.c. specification, electrical ballast, electrical starting test, fluorescent lamp, marking, operating condition, tubular lamp,

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English version

**AC and/or DC-supplied electronic control gear for tubular fluorescent lamps -
Performance requirements
(IEC 60929:2011)**

Appareillages électroniques alimentés en courant alternatif et/ou continu pour lampes tubulaires à fluorescence - Exigences de performances (CEI 60929:2011)

Wechsel- und/oder gleichstromversorgte elektronische Betriebsgeräte für röhrenförmige Leuchtstofflampen - Anforderungen an die Arbeitsweise (IEC 60929:2011)

This European Standard was approved by CENELEC on 2011-06-23. 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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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 34C/963/FDIS, future edition 4 of IEC 60929, prepared by SC 34C, Auxiliaries for lamps, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60929 on 2011-06-23.

This European Standard supersedes EN 60929:2006 + corr. Dec.2006.

The essential change with respect to EN 60929:2006 + corr. Dec.2006 is the extension to DC supplied control gear and the deletion of the requirements for digital signal control of electronic control gear.

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

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) | 2012-03-23 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2014-06-23 |

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

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- Explanatory matter: in smaller roman type.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60929:2011 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 61000-3-2	NOTE Harmonized as EN 61000-3-2.
IEC 61000-4-30	NOTE Harmonized as EN 61000-4-30.
IEC 61547	NOTE Harmonized as EN 61547

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

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 60081	1997	Double-capped fluorescent lamps -	EN 60081	1998
+ A1 (mod)	2000	Performance specifications	+ A1	2002
+ A2	2003		+ A2	2003
+ A3	2005		+ A3	2005
+ A4	2010		+ A4	2010
IEC 60901	1996	Single-capped fluorescent lamps -	EN 60901	1996
+ A1	1997	Performance specifications	+ A1	1997
+ A2	2000		+ corr. October	1997
+ A3	2004		+ A2	2000
+ A4	2007		+ A3	2004
			+ A4	2008
IEC 61347-1 (mod)	2007	Lamp controlgear - Part 1: General and safety requirements	EN 61347-1	2008
IEC 61347-2-3	2000	Lamp controlgear -	EN 61347-2-3	2001
+ A1	2004	Part 2-3: Particular requirements for a.c.	+ corr. July	2003
+ A2	2006	supplied electronic ballasts for fluorescent lamps	+ corr. December	2010
			+ A1	2004
			+ A2	2006
IEC 62386	Series	Digital addressable lighting interface	EN 62386	Series

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INTRODUCTION

This International Standard covers performance requirements for electronic control gear for use on a.c., at 50 Hz or 60 Hz, and/or d.c. supplies up to 1 000 V with operating frequencies deviating from the supply frequency, associated with tubular fluorescent lamps as specified in IEC 60081 and IEC 60901, and other tubular fluorescent lamps for high frequency operation, still to be standardised.

These control gear are intended to operate lamps at various frequencies including high frequencies and at various lamp powers. Attention is drawn to the fact that operating frequencies below 20 kHz may cause audio noise disturbance, whereas frequencies above 50 kHz may increase radio interference problems.

Some lamps may be specifically designed for high-frequency operation on high-frequency control gear. Two starting modes, preheat and non-preheat, are described.

NOTE Lamps, only specified for preheat starting may be operated on other types of circuits. The control gear manufacturer should provide test data which shows satisfactory starting and operation similar as the ones stated in Clause 6.

In order to obtain satisfactory performance of fluorescent lamps and electronic control gears, it is necessary that certain features of their design be properly co-ordinated. It is essential, therefore, that specifications for them be written in terms of measurement made against some common baseline of reference, permanent and reproducible.

These conditions may be fulfilled by reference ballasts. Moreover, the testing of control gear for fluorescent lamps will, in general, be made with reference lamps and, in particular, by comparing results obtained on such lamps with control gear to be tested and with reference ballast.

Whereas the reference ballast for frequencies of 50 Hz or 60 Hz is a self-inductive coil, the high-frequency reference ballast is a resistor because of its independence of frequency and the lack of influence of parasitic capacitance.

AC and/or DC-SUPPLIED ELECTRONIC CONTROL GEAR FOR TUBULAR FLUORESCENT LAMPS – PERFORMANCE REQUIREMENTS

1 Scope

This international Standard specifies performance requirements for electronic control gear for use on a.c. at 50 Hz or 60 Hz and/or d.c. supplies, both up to 1 000 V, with operating frequencies deviating from the supply frequency, associated with fluorescent lamps as specified in IEC 60081 and IEC 60901, and other fluorescent lamps for high-frequency operation.

NOTE 1 Tests in this standard are type tests. Requirements for testing individual control gear during production are not included.

NOTE 2 There are regional standards regarding the regulation of mains current harmonics and immunity for end-products like luminaires and independent control gear. In a luminaire, the control gear is dominant in this respect. Control gear, together with other components, should comply with these standards.

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 60081:1997, *Double-capped fluorescent lamps – Performance specifications*
Amendment 1(2000)
Amendment 2 (2003)
Amendment 3 (2005)
Amendment 4 (2010)

IEC 60901:1996, *Single-capped fluorescent lamps – Performance specifications*
Amendment 1(1997)
Amendment 2 (2000)
Amendment 3 (2004)
Amendment 4 (2007)

IEC 61347-1:2007, *Lamp controlgear – Part 1: General and safety requirements*
Amendment 1(2010)¹

IEC 61347-2-3:2000, *Lamp controlgear – Part 2-3: Particular requirements for a.c. supplied electronic ballasts for fluorescent lamps*
Amendment 1(2004)
Amendment 2 (2006)

IEC 62386 (all parts), *Digital addressable lighting*

¹ There exists a consolidated edition 2.1 (2010) that comprises IEC 61347-1:2007 and its Amendment 1 (2010).