

Irish Standard I.S. EN 61347-2-9:2013

Lamp controlgear -- Part 2-9: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps) (IEC 61347-2-9:2012 (EQV))

© CENELEC 2013 No copying without NSAI permission except as permitted by copyright law.

Incorporating amendments/corrigenda issued since publication:	

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces: EN 61347-2-9:2001 + corr July 2003 + corr Dec 2010 + A1:2003 + A2:2006 This document is based on: EN 61347-2-9:2013

Published: 11 January, 2013

This document was published under the authority of the NSAI and comes into effect on:

ICS number: 29.140.99

14 February, 2013

NSAI T +353 1 807 3800 Sales:

1 Swift Square, F +353 1 807 3838 T +353 1 857 6730 Northwood, Santry E standards@nsai.ie F +353 1 857 6729 Dublin 9 W standards.ie

W NSALie

Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

EN 61347-2-9

NORME EUROPÉENNE EUROPÄISCHE NORM

January 2013

ICS 29.140.99

Supersedes EN 61347-2-9:2001 + corr. Jul.2003 + corr. Dec.2010 + A1:2003 + A2:2006

English version

Lamp controlgear -

Part 2-9: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps)

(IEC 61347-2-9:2012)

Appareillages de lampes -Partie 2-9: Exigences particulières pour les appareillages électromagnétiques pour lampes à décharge (à l'exclusion des lampes fluorescentes) (CEI 61347-2-9:2012) Geräte für Lampen -Teil 2-9: Besondere Anforderungen an elektromagnetische Betriebsgeräte für Entladungslampen (ausgenommen Leuchtstofflampen) (IEC 61347-2-9:2012)

This European Standard was approved by CENELEC on 2012-12-04. 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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

EN 61347-2-9:2013

- 2 -

Foreword

The text of document 34C/1022/FDIS, future edition 2 of IEC 61347-2-9, prepared by SC 34C, "Auxiliaries for lamps", of IEC TC 34, "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61347-2-9:2013.

The following dates are fixed:

•	latest date by which the document has	(dop)	2013-09-04
	to be implemented at national level by		
	publication of an identical national		
	standard or by endorsement		
•	latest date by which the national	(dow)	2015-12-04
	standards conflicting with the		
	document have to be withdrawn		

This document supersedes EN 61347-2-9:2001 + corr. Jul.2003 + corr. Dec.2010 + A1:2003 + A2:2006.

EN 61347-2-9:2013 includes the following significant technical changes with respect to EN 61347-2-9:2001:

- a) the addition of a new Clause 14;
- b) the word "ballast" is changed to "electromagnetic controlgear".

This standard shall be used in conjunction with EN 61347-1.

This Part 2-9 supplements or modifies the corresponding clauses in EN 61347-1, so as to convert that publication into the European Standard: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps).

Where the requirements of any of the clauses of EN 61347-1 are referred to in this standard by the phrase "The requirements of clause n of EN 61347-1 apply", this phrase is interpreted as meaning that all requirements of the clause in question of Part 1 apply, except any which are clearly inapplicable to the specific type of lamp controlgear covered by this particular part of EN 61347-2.

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.

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 standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

- 3 -

EN 61347-2-9:2013

Endorsement notice

The text of the International Standard IEC 61347-2-9:2012 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 60923 NOTE Harmonized as EN 60923.

IEC 61167 NOTE Harmonized as EN 61167.

IEC 61347-2-8 NOTE Harmonized as EN 61347-2-8.

EN 61347-2-9:2013

- 4 -

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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>	EN/HD	<u>Year</u>
IEC 60188	-	High-pressure mercury vapour lamps - Performance specifications	EN 60188	-
IEC 60192	-	Low pressure sodium vapour lamps - Performance specifications	EN 60192	-
IEC 60598-1	-	Luminaires - Part 1: General requirements and tests	EN 60598-1	-
IEC 60662	-	High pressure sodium vapour lamps - Performance specifications	EN 60662	-
IEC 61347-1 (mod) + A1	2007 2010	Lamp controlgear - Part 1: General and safety requirements	EN 61347-1 + A1	2008 2011
IEC 61347-2-1	-	Lamp controlgear - Part 2-1: Particular requirements for starting devices (other than glow starters)	EN 61347-2-1	-
IEC 62035 (mod)	-	Discharge lamps (excluding fluorescent lamps) - Safety specifications	EN 62035	-

- 2 - 61347-2-9 © IEC:2012

CONTENTS

FOF	REWORD	4		
INT	TRODUCTION	6		
1	Scope7			
2	Normative references	7		
3	Terms and definitions7			
4	4 General requirements			
	4.1 General	8		
	4.2 Capacitors and other components	8		
	4.3 Thermally protected electromagnetic controlgear	8		
5	General notes on tests	8		
6	Classification	9		
7	Marking	9		
	7.1 General	9		
	7.2 Mandatory markings			
	7.3 Information to be provided, if applicable			
_	7.4 Other information			
8	Protection against accidental contact with live parts			
9	Terminals			
10	Provisions for earthing10			
11	Moisture resistance and insulation	10		
12	Electric strength	10		
13	Thermal endurance test for windings	10		
14	Electromagnetic controlgear heating	10		
	14.1 General	10		
	14.2 Test requirements	10		
	14.3 Normal operating condition	11		
	14.4 Abnormal operating condition			
15	High-voltage impulse testing	14		
	15.1 General	14		
	15.2 Test for electromagnetic controlgear operating with lamp with external starting devices	14		
	15.3 Test for electromagnetic controlgear operating with lamps with internal starting devices	14		
16	Fault conditions	16		
17	Construction	16		
18	Creepage distances and clearances	16		
19	Screws, current-carrying parts and connections	16		
20	Resistance to heat, fire and tracking			
21	Resistance to corrosion			
22				
	nex A (normative) Test to establish whether a conductive part is a live part which			
may	ay cause an electric shock			
	nex B (normative) Particular requirements for thermally protected lamp	18		

61347-2-9 © IEC:2012

- 3 -

Annex C (normative) Particular requirements for electronic lamp controlgear with means of protection against overheating	19
Annex D (normative) Requirements for carrying out the heating tests of thermally protected lamp electromagnetic controlgear	20
Annex E (normative) Use of constant S other than 4 500 in $t_{ m W}$ tests	21
Annex F (normative) Draught-proof enclosure	22
Annex G (normative) Explanation of the derivation of the values of pulse voltages	23
Annex H (normative) Tests	24
Annex I (normative) Method for selection of varistors	25
Annex J (informative) Explanation of electromagnetic controlgear temperatures	26
Annex K (normative) Additional requirements for built-in electromagnetic controlgear with double or reinforced insulation	29
Bibliography	30
Figure 1 – Test circuit for electromagnetic controlgear for lamps with integral starting devices	15
Figure J.1 – Test hood for electromagnetic controlgear heating test	28
Figure J.2 – Test corner for electromagnetic controlgear heating	28
Table 1 – Test voltages for electromagnetic controlgear generating pulse voltages	10
Table 2 – Maximum temperatures	12
Table 3 – Limiting temperatures of windings under abnormal operating conditions and at 110 % of rated voltage for electromagnetic controlgear subjected to endurance test duration of 30 days	13
Table 4 – Limiting temperatures of windings under abnormal operating conditions and at 110 % of rated voltage for electromagnetic controlgear marked D6 which are	
subjected to an endurance test duration of 60 days	13

-4 -

61347-2-9 © IEC:2012

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LAMP CONTROLGEAR -

Part 2-9: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps)

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 61347-2-9 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lamps and related equipment.

This second edition cancels and replaces the first edition published in 2000, Amendment 1:2003 and Amendment 2:2006. This edition constitutes a technical revision.

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

- a) the addition of a new Clause 14;
- b) the word "ballast" is changed to "electromagnetic controlgear".

61347-2-9 © IEC:2012

- 5 -

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

FDIS	Report on voting
34C/1022/FDIS	34C/1028/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.

This standard shall be used in conjunction with IEC 61347-1.

This Part 2-9 supplements or modifies the corresponding clauses in IEC 61347-1, so as to convert that publication into the IEC Standard: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps).

Where the requirements of any of the clauses of IEC 61347-1 are referred to in this standard by the phrase "The requirements of clause n of IEC 61347-1 apply", this phrase is interpreted as meaning that all requirements of the clause in question of Part 1 apply, except any which are clearly inapplicable to the specific type of lamp controlgear covered by this particular part of IEC 61347-2.

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.

A list of all parts of the IEC 61347 series, published under the general title *Lamp controlgear*, can be found on the IEC website.

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.

-6-

61347-2-9 © IEC:2012

INTRODUCTION

This second edition of IEC 61347-2-9 is published in conjunction with IEC 61347-1. The formatting into separately published parts provides for ease of future amendments and revisions. Additional requirements will be added as and when a need for them is recognized.

This standard, and the parts which make up IEC 61347-2, in referring to any of the clauses of IEC 61347-1, specify the extent to which such a clause is applicable and the order in which the tests are to be performed; they also include additional requirements, as necessary. All parts which make up IEC 61347-2 are self-contained and, therefore, do not include references to each other.

61347-2-9 © IEC:2012

-7-

LAMP CONTROLGEAR -

Part 2-9: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps)

1 Scope

This part of the IEC 61347 series specifies particular safety requirements for electromagnetic controlgear for discharge lamps such as high-pressure mercury vapour, low-pressure sodium vapour, high-pressure sodium vapour and metal halide lamps. The standard covers inductive-type electromagnetic controlgear for use on a.c. supplies up to 1 000 V at 50 Hz or 60 Hz, associated with discharge lamps, having rated wattages, dimensions and characteristics as specified in IEC 60188, IEC 60192 and IEC 60662.

This standard applies to complete electromagnetic controlgear and to their component parts such as reactors, transformers and capacitors. Particular requirements for thermally protected electromagnetic controlgear are given in Annex B.

For certain types of discharge lamps, an ignitor is required.

NOTE Electromagnetic controlgear for fluorescent lamps are covered by IEC 61347-2-8.

Performance requirements are the subject of IEC 60923.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60188, High-pressure mercury vapour lamps - Performance specifications

IEC 60192, Low-pressure sodium vapour lamps – Performance specifications

IEC 60598-1, Luminaires – Part 1: General requirements and tests

IEC 60662, High-pressure sodium vapour lamps – Performance specifications

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

IEC 61347-2-1, Lamp controlgear – Part 2-1: Particular requirements for starting devices (other than glow starters)

IEC 62035, Discharge lamps (excluding fluorescent lamps) - Safety specifications

3 Terms and definitions

For the purpose of this document, the terms and definitions given in IEC 61347-1:2007, together with the following apply:



Product Page

- Dooking for additional Standards? Visit Intertek Inform Infostore
- Dearn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation