

**Lampide juhtimisseadised. Osa 2-7: Erinõuded  
alalisvoolutoitega elektron-liiteseadistele  
hädavalgustuseks**

**Lamp controlgear - Part 2-7: Particular requirements for  
battery supplied electronic controlgear for emergency  
lighting (self-contained)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 61347-2-7:2012 sisaldab Euroopa standardi EN 61347-2-7:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 61347-2-7:2012 consists of the English text of the European standard EN 61347-2-7:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.03.2012.	Date of Availability of the European standard is 02.03.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 29.140.99

Võtmesõnad: bulbs, electric, electrical engi, electrical safety, emergency lighting, equipment safety, illumination engineering, instruments, insulations, lamps, protection against electric shocks, safety, safety requirements, specification (approval), specifications, testing,

### Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Aru 10, 10317 Tallinn, Eesti; [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

### The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:  
Aru 10, 10317 Tallinn, Estonia; [www.evs.ee](http://www.evs.ee); phone 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English version

**Lamp controlgear -  
Part 2-7: Particular requirements for battery supplied electronic  
controlgear for emergency lighting (self-contained)  
(IEC 61347-2-7:2011)**

Appareillages de lampes -  
Partie 2-7: Règles particulières relatives  
aux appareillages électroniques alimentés  
par batterie pour l'éclairage de secours  
(autonome)  
(CEI 61347-2-7:2011)

Geräte für Lampen -  
Teil 2-7: Besondere Anforderungen an  
batterieversorgte elektronische  
Betriebsgeräte für die Notbeleuchtung (mit  
Einzelbatterie)  
(IEC 61347-2-7:2011)

This European Standard was approved by CENELEC on 2012-01-11. 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, 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**

## Foreword

The text of document 34C/995/FDIS, future edition 3 of IEC 61347-2-7, 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 61347-2-7:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2012-10-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-01-11

This document supersedes EN 61347-2-7:2006.

EN 61347-2-7:2012 includes the following significant technical changes with respect to EN 61347-2-7:2006:

- modification of EN 61347-2-7 to become a standard exclusively for d.c. battery supplied electronic controlgear for emergency lighting (self-contained). EN 61347-2-3:2011, Annex J, is intended to cover centrally supplied emergency controlgear;
- update of Clause 22 – Recharging devices;
- modification of Clause 20 battery voltage characterisation to support EBLF measurement. This to simplify and increase reproducibility of testing;
- rationalisation of requirements between EN 61347-2-7 and EN 60598-2-22, requirements of EN 60598-2-22 being transferred to EN 61347-2-7.

This standard shall be used in conjunction with EN 61347-1:2008 + A1:2011 + A2:200X<sup>1</sup>.

This part 2 supplements or modifies the corresponding clauses in EN 61347-1.

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

- requirements: in roman type.
- *test specifications: in italic type.*
- notes: in small 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.

## Endorsement notice

The text of the International Standard IEC 61347-2-7:2011 was approved by CENELEC as a European Standard without any modification.

---

<sup>1</sup> To be published.

## 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>	<u>EN/HD</u>	<u>Year</u>
IEC 60081	-	Double-capped fluorescent lamps - Performance specifications	EN 60081	-
IEC 60598-2-22	-	Luminaires - Part 2-22: Particular requirements - Luminaires for emergency lighting	EN 60598-2-22	-
IEC 60901	-	Single-capped fluorescent lamps - Performance specifications	EN 60901	-
IEC 60921	-	Ballasts for tubular fluorescent lamps - Performance requirements	EN 60921	-
IEC 60929	-	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	EN 60929	-
IEC 61347-1	-	Lamp controlgear - Part 1: General and safety requirements	EN 61347-1	-
IEC 61347-2-3	-	Lamp controlgear - Part 2-3: Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps	EN 61347-2-3	-
IEC 61558-1 + corr. March + corr. March + A1	2005 2010 2008 2009	Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests	EN 61558-1 + corr. August + A1	2005 2006 2009
IEC 61558-2-1	2007	Safety of power transformers, power supplies, reactors and similar products - Part 2-1: Particular requirements and tests for separating transformers and power supplies incorporating separating transformers for general applications	EN 61558-2-1	2007
IEC 61558-2-6	2009	Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers	EN 61558-2-6	2009
IEC 61558-2-16	2009	Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units	EN 61558-2-16	2009

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62034	-	Automatic test system for battery powered emergency escape lighting	EN 62034	-

This document is a preview generated by EVS

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 General requirements .....	9
5 General notes on tests .....	10
6 Classification.....	10
7 Marking .....	10
8 Protection against accidental contact with live parts .....	12
9 Terminals .....	12
10 Provisions for protective earthing .....	12
11 Moisture resistance and insulation.....	12
12 Electric strength .....	12
13 Thermal endurance test for windings of ballasts .....	12
14 Fault conditions .....	12
15 Starting conditions.....	12
16 Lamp current .....	13
17 Supply current.....	13
18 Maximum current in any lead (with cathode preheating) .....	13
19 Lamp operating current waveforms.....	13
20 Functional safety (EBLF) .....	14
21 Changeover operation .....	15
22 Recharging device.....	16
23 Protection against excessive discharge .....	18
24 Indicator .....	19
25 Remote control, rest mode, inhibition mode .....	19
26 Temperature cycling test and endurance test .....	20
27 Polarity reversal .....	20
28 Fault conditions .....	21
29 Construction.....	21
30 Creepage distances and clearances .....	21
31 Screws, current-carrying parts and connections.....	21
32 Resistance to heat, fire and tracking.....	21
33 Resistance to corrosion .....	21
34 Abnormal lamp conditions .....	21
35 Protection of associated components .....	26
Annex A (normative) Test to establish whether a conductive part is a live part, which may cause an electric shock .....	28
Annex B (normative) Particular requirements for thermally protected lamp controlgear .....	28
Annex C (normative) Particular requirements for electronic lamp controlgear with means of protection against overheating.....	28

Annex D (normative) Requirements for carrying out the heating test of thermally protected lamp controlgear .....	28
Annex E (normative) Use of constant S other than 4 500 in $t_w$ tests.....	28
Annex F (normative) Draught-proof enclosure.....	28
Annex G (normative) Explanation of the derivation of the values of pulse voltages .....	29
Annex H (normative) Tests .....	29
Annex I (normative) Batteries for emergency lighting luminaires .....	29
Annex J (informative) Rest mode and inhibition mode facilities .....	29
Annex K (normative) Ballasts incorporating an automatic testing function for emergency lighting operation .....	30
Annex L (informative) Compatibility between normal mains operation electronic controlgear and battery-powered emergency operation controlgear .....	33
Figure 1 – Suitable circuit for the measurement of lamp current and luminous flux.....	15
Figure 2 – Rectifying effect test .....	23
Figure 3 – Circuit to test whether a controlgear can withstand a leaking burner .....	24
Figure 4 – Circuit to test whether a ballast can withstand rectification.....	26
Figure L.1 – Timing diagram: changeover operation.....	34
Figure L.2 – Supply voltage for the function test .....	35
Table 1 – Voltage per cell to which the battery is discharged .....	16
Table 2 – Relation between r.m.s. working voltage and maximum peak voltage .....	26
Table K.1 – Relevant requirements of IEC 62034.....	30



## INTRODUCTION

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 reference to each other.

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.

## LAMP CONTROLGEAR –

### Part 2-7: Particular requirements for battery supplied electronic controlgear for emergency lighting (self-contained)

#### 1 Scope

This part of IEC 61347 specifies particular safety requirements for battery supplied electronic controlgear for maintained and non-maintained emergency lighting purposes.

It includes specific requirements for electronic controlgear and control units for self-contained luminaires for emergency lighting as specified by IEC 60598-2-22.

It is intended for controlgear for fluorescent lamps, but it is also applicable to other lamp types e.g. incandescent, high pressure discharge lamps and LEDs.

This standard covers the emergency mode operation of a controlgear. For controlgear with a combination of normal and emergency lighting operation, the normal lighting operation aspects are covered by the appropriate part 2 of IEC 61347.

DC supplied electronic controlgear for emergency lighting may or may not include batteries.

This standard also includes operational requirements for electronic controlgear, which, in the case of d.c. supplied electronic controlgear, are regarded as performance requirements. This is because non-operational emergency lighting equipment presents a safety hazard. It does not apply to d.c. supplied electronic controlgear for emergency lighting, which are intended for connection to a centralised emergency power supply system. A centralised emergency power system could be a central battery system.

NOTE Annex J of IEC 61347-2-3 applies to a.c., a.c./d.c. or d.c. supplied electronic controlgear for connection to centralised emergency power supply systems that are also intended for emergency lighting operations from a.c./d.c. supplies.

#### 2 Normative references

For the purpose of this part of IEC 61347, the normative references given in Clause 2 of IEC 61347-1, which are mentioned in this standard, apply, together with the following normative references.

IEC 60081, *Double-capped fluorescent lamps – Performance specifications*

IEC 60598-2-22, *Luminaires – Part 2: Particular requirements – Luminaires for emergency lighting*

IEC 60901, *Single-capped fluorescent lamps – Performance specifications*

IEC 60921, *Ballasts for tubular fluorescent lamps – Performance requirements*

IEC 60929, *AC and/or DC-supplied electronic control gear for tubular fluorescent lamps – Performance requirements*

IEC 61347-1, *Lamp controlgear – Part 1: General and safety requirements*

IEC 61347-2-3, *Lamp control gear – Part 2-3: Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps*

IEC 61558-1:2005, *Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests*  
Amendment 1 (2009)<sup>1</sup>

IEC 61558-2-1:2007, *Safety of power transformers, power supply units and similar products – Part 2-1: Particular requirements and tests for separating transformers and power supplies incorporating separating transformers for general applications*

IEC 61558-2-6:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers*

IEC 61558-2-16:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*

IEC 62034, *Automatic test systems for battery powered emergency escape lighting*

### 3 Terms and definitions

For the purposes of this part of IEC 61347, the terms and definitions of Clause 3 of IEC 61347-1 and Clause 22.3 in IEC 60598-2-22 apply, together with the following:

#### 3.1

##### **emergency lighting**

lighting provided for use when the supply to the normal lighting fails

#### 3.2

##### **changeover operation**

automatic connection of the lamp to emergency lighting supply when failure of the normal lighting supply occurs, and connecting automatically back to the normal lighting supply when it is restored

#### 3.3

##### **recharging device**

device to maintain the battery charge and to recharge the battery within a specified time

#### 3.4

##### **protection device against extensive discharge**

automatic device to disconnect the ballast from the battery when the battery voltage drops below a certain value

#### 3.5

##### **rated duration of emergency operation**

time, as claimed by the manufacturer, for which the rated emergency ballast lumen factor is achieved

#### 3.6

##### **maximum d.c. operating voltage**

maximum supply voltage declared by the controlgear manufacturer

<sup>1</sup> There exists a consolidated edition 2.1 (2009) comprising IEC 61558-1 (2005) and its Amendment 1 (2009).