

© Copyright SEK. Reproduction in any form without permission is prohibited.

Belysningsmateriel – Driftdon för ljuskällor – Säkerhet – Del 2-7: Särskilda fordringar på batteridrivna elektroniska förkopplingsdon för nödbelysning

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

Som svensk standard gäller europastandarden EN 61347-2-7:2012. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61347-2-7:2012.

Nationellt förord

Europastandarden EN 61347-2-7:2012

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61347-2-7, Third edition, 2011 - Lamp controlgear - Part 2-7: Particular requirements for battery supplied electronic controlgear for emergency lighting (self-contained)**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 61347-1, utgåva 2, 2008 och dess separat utgivna tillägg.

Tidigare fastställd svensk standard SS-EN 61347-2-7, utgåva 2, 2007 och SS-EN 61347-2-7 C1, utgåva 1, 2011, gäller ej fr o m 2015-01-11.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

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 + A2:200X¹.

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.

¹ 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	-

CONTENTS

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)¹

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*

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