

# INTERNATIONAL STANDARD



~~Lamp control gear –~~

Controlgear for electric light sources – Safety –

Part 2-3: Particular requirements – AC or DC supplied electronic controlgear for  
fluorescent lamps

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**Part 2-3: Particular requirements – AC or DC supplied electronic controlgear for**  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

~~LAMP CONTROL GEAR~~  
CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –

**Part 2-3: Particular requirements – AC or DC  
supplied electronic controlgear for fluorescent lamps**

## FOREWORD

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**This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61347-2-3:2011+AMD1:2016 CSV. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.**

IEC 61347-2-3 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lighting. It is an International Standard.

This third edition cancels and replaces the second edition published in 2011 and Amendment 1:2016. This edition constitutes a technical revision.

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

- a) introduction of dated references where appropriate;
- b) clarification of sample item numbers;
- c) alignment of clause numbers with those of IEC 61347-1.

The text of this International Standard is based on the following documents:

Draft	Report on voting
34C/1586/CDV	34C/1594/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

This document is intended to be used in conjunction with IEC 61347-1:2015 and IEC 61347-1:2015/AMD1:2017. Where the requirements of any of the clauses of IEC 61347-1:2015 and IEC 61347-1:2015/AMD1:2017 are referred to in this document by the phrase "IEC 61347-1:2015, Clause n and IEC 61347-1:2015/AMD1:2017, Clause n apply", this phrase is interpreted as meaning that all the requirements of the clause in question of IEC 61347-1:2015 and IEC 61347-1:2015/AMD1:2017 apply, except any which are clearly inapplicable to the specific type of controlgear covered by this document.

NOTE In this document, the following print type is used:

- *compliance statements: in italic type.*

A list of all parts in the IEC 61347 series, published under the general title *Controlgear for electric light sources – Safety*, can be found on the IEC website.

Future documents in this series will carry the new general title as cited above. Titles of existing documents in this series will be updated at the time of the next edition.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](https://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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## INTRODUCTION

~~This second edition of IEC 61347-2-3, published in conjunction with IEC 61347-1, represents an review of the first edition of IEC 61347-2-3. 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 intended to be self-contained and, therefore, do not include references to each other. However, for the case of emergency lighting lamp control gear, some cross-referencing has been necessary.~~

~~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 control gear covered by this particular part of IEC 61347-2.~~

The technical requirements in this document compared to IEC 61347-2-3:2011 and IEC 61347-2-3:2011/AMD1:2016 are essentially unchanged. Nevertheless, a new edition of this document could not be avoided, as without the introduction of dated references to IEC 61347-1:2015 and IEC 61347-1:2015/AMD1:2017, the fourth edition of IEC 61347-1:<sup>1</sup> would have been implicitly applicable due to the undated nature of the references to IEC 61347-1 in IEC 61347-2-3:2011 and IEC 61347-2-3:2011/AMD1:2016.

This document, in referring to any of the clauses of IEC 61347-1:2015 and IEC 61347-1:2015/AMD1:2017, specifies the extent to which such a clause is applicable. Additional requirements are also included, as necessary.

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<sup>1</sup> Fourth edition under preparation. Stage at the time of publication IEC FDIS 61347-1:2024.

# ~~LAMP CONTROL GEAR –~~ CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –

## Part 2-3: Particular requirements – AC or DC supplied electronic controlgear for fluorescent lamps

### 1 Scope

This part of IEC 61347 specifies safety requirements for electronic controlgear for use on AC supplies at 50 Hz or 60 Hz up to 1 000 V ~~and/or~~ on DC supplies up to 1 000 V with lamp operating frequencies deviating from the supply frequency, associated with fluorescent lamps as specified in IEC 60081 and IEC 60901, low-pressure UV lamps, and other fluorescent lamps for high-frequency operation.

NOTE 1 Requirements for centrally supplied controlgear for emergency lighting are given in Annex B. This also includes performance requirements as far as they are considered to be safety-related with respect to reliable emergency operation.

NOTE 2 Requirements for emergency lighting controlgear operating from non-centralised power supplies are given in IEC 61347-2-7.

NOTE 3 Performance requirements are the subject of IEC 60929.

~~Performance requirements are the subject of IEC 60929.~~

~~Particular requirements for electronic control gear with means protection against overheating are given in Annex C.~~

~~For emergency lighting operation, particular requirements for control gear operated from a central supply are given in Annex J. Performance requirements appropriate to the safe operation of emergency lighting are also contained in Annex J.~~

~~Requirements for emergency lighting control gear operating from non-centralised power supplies are given in IEC 61347-2-7.~~

~~NOTE Performance requirements detailed by Annex J are those considered to be safety-related with respect to reliable emergency operation.~~

### 2 Normative references

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

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*  
IEC 60081:1997/AMD1:2000  
IEC 60081:1997/AMD2:2003  
IEC 60081:1997/AMD3:2005  
IEC 60081:1997/AMD4:2010  
IEC 60081:1997/AMD5:2013  
IEC 60081:1997/AMD6:2017

IEC 60901:1997, *Single-capped fluorescent lamps – Performance specifications*  
IEC 60901:1997/AMD1:1997  
IEC 60901:1997/AMD2:2000  
IEC 60901:1997/AMD3:2004  
IEC 60901:1997/AMD4:2007  
IEC 60901:1997/AMD5:2011  
IEC 60901:1997/AMD6:2014

IEC 60929:2011, *AC and/or DC-supplied electronic control gear for tubular fluorescent lamps – Performance requirements*  
IEC 60929:2011/AMD1:2015

IEC 61347-1:~~2007~~2015, *Lamp controlgear – Part 1: General and safety requirements*  
IEC 61347-1:2015/AMD1:~~2010~~2017

IEC 61347-2-7:2011, *Lamp controlgear – Part 2-7: Particular requirements for ~~battery~~ electric source for safety services (ESSS) supplied electronic controlgear for emergency lighting (self-contained)<sup>4</sup>*  
IEC 61347-2-7:2011 /AMD1:2017  
IEC 61347-2-7:2011 /AMD2:2021

IEC 61547, *Equipment for general lighting purposes – EMC immunity requirements*

### 3 Terms and definitions iTeh Standards

For the purposes of this document, the terms and definitions given in IEC 61347-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 3.1

##### **AC supplied electronic controlgear**

mains-supplied AC to AC inverter including stabilizing elements for starting and operating one or more fluorescent lamps, generally at high frequency

#### ~~3.2~~

##### ~~maximum value of lamp power (of a controllable control gear)~~

~~lamp power (light output) which complies with 8.1 of IEC 60929, unless otherwise declared by the manufacturer or responsible vendor~~

#### 3.2

##### **maximum allowed peak voltage**

highest permitted peak voltage across any insulation of the output under open-circuit condition and any normal and abnormal operating conditions

Note 1 to entry: The maximum allowed peak voltage is related to the declared RMS working voltage; see Table 1.

<sup>4</sup>—To be published

**3.4****minimum value of lamp power (of a controllable control gear)**

~~lowest percentage of the lamp power defined in 3.2 declared by the manufacturer or responsible vendor~~

**3.5****a.c./d.c. supplied electronic control gear for maintained emergency lighting**

~~mains/battery-supplied a.c./d.c. to a.c. inverter including stabilizing elements for starting and operating one or more fluorescent lamps, generally at high frequency for emergency lighting~~

**3.3****cathode dummy cathode resistor**

cathode substitution resistor as specified on the relevant lamp data sheet of IEC 60081 or IEC 60901 or as declared by the relevant lamp manufacturer or by the responsible vendor

**3.4****DC supplied electronic controlgear**

DC-supplied ~~electronic control gear or inverter includes~~ inverter including stabilization elements for starting and operating one or more tubular fluorescent lamps, generally at high frequency

**3.5****sample**

one or more sampling items intended to provide information on the population or on the material provided by the manufacturer or responsible vendor

[SOURCE: IEC 60050-151:2001, 151-16-19, modified – "provided by the manufacturer or responsible vendor" has been added.]

**3.6****sample item**

one of the individual items in a population of similar items, or a portion of material forming a cohesive entity and taken from one place and at one time

[SOURCE: IEC 60050-151:2001, 151-16-18]

**3.7****emergency lighting**

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

Note 1 to entry: Emergency lighting includes escape lighting and standby lighting.

**3.8****rated emergency power supply voltage**

rated voltage of the emergency power supply claimed by the manufacturer for the information of the installer or user

**3.9****starting aid**

device which facilitates the starting of the lamp

EXAMPLE A conductive strip affixed to the outer surface of the lamp and a conductive plate which is spaced within an appropriate distance from a lamp.

**3.10****emergency ballast lumen factor**

EBLF

ratio of the emergency luminous flux of the lamp supplied by the emergency controlgear to the luminous flux of the same lamp operated with the appropriate reference ballast at its rated voltage and frequency

Note 1 to entry: The emergency ballast lumen factor is the minimum of the values measured at the appropriate time after failure of the normal supply and continuously.

### 3.11

#### preheat starting

circuit in which the lamp electrodes are brought to emission temperature before the lamp actually ignites

### 3.12

#### non-preheat starting

circuit which utilizes a high open-circuit voltage causing field emission from the electrode

## 4 General requirements

~~The requirements of Clause 4 of IEC 61347-1 apply, together with the following additional requirement:~~

~~AC/d.c. electronic control gear for emergency lighting shall comply with the requirements of Annex J.~~

IEC 61347-1:2015, Clause 4 applies, together with the following:

- For G5-capped lamps with a diameter of 16 mm, the working voltage between any output terminal and earth shall not exceed 430 V (RMS).

NOTE 1 This requirement is in accordance with IEC 61195:1999, Annex E.

- For centrally supplied controlgear for emergency lighting Annex B applies.

NOTE 2 This includes AC, AC/DC and DC supplied types.

EXAMPLE Central battery systems and generator-based systems.

- For controlgear with means of protection against overheating IEC 61347-1:2015, Annex C applies.

## 5 General notes on tests

~~The requirements of Clause 5 of 61347-1 apply together with the following additional requirement:~~

~~The following number of specimens shall be submitted for testing:~~

- ~~— one unit for the tests of Clause 6 to 12 and 15 to 22;~~
- ~~— 12 samples with each one or more units for the test of Clause 14, refer to IEC 61347-1, 14.5 (additional units or components, where necessary, may be required in consultation with the manufacturer).~~

~~Tests to meet the safety requirements for a.c./d.c. supplied electronic control gear for emergency lighting are made under the conditions specified in Annex J.~~

IEC 61347-1:2015, Clause 5 applies, together with the following:

- IEC 61347-1:2015, Annex H applies.
- One sample item shall be used for all tests, unless otherwise specified in the corresponding clause.

To allow for parallel testing and reduced test times, additional sample items may be used except where the outcome of the test can be affected by preceding tests, for example the tests of Clause 11 and Clause 12.

Specially prepared sample items may be used where required.

- Tests to meet the safety requirements for electronic controlgear for emergency lighting shall be performed under the conditions specified in Annex B.

For information on requalification of products compliant with the previous edition of this document, i.e. IEC 61347-2-3:2011 and IEC 61347-2-3:2011/AMD1:2016, refer to Annex D.

## 6 Classification

IEC 61347-1:2015, Clause 6 applies.

## 7 Marking

~~Control gear which forms an integral part of the luminaire need not be marked.~~

### 7.1 Marking and information

#### 7.1.1 Mandatory marking

~~In accordance with the requirements of 7.2 of IEC 61347-1,~~ Controlgear, other than ~~integrated~~ integral controlgear, shall be ~~clearly and durably~~ marked with the following ~~mandatory markings~~:

- items a), b), c), d), e), f), k), l), m), t) and u) of IEC 61347-1:2015, 7.1 and IEC 61347-1:2015/AMD1:2017, 7.1;
- item s) of IEC 61347-1:2015, 7.1 and IEC 61347-1:2015/AMD1:2017, 7.1;

This item has priority over the requirements of SELV controlgear in IEC 61347-1:2015, Table L.1 and IEC 61347-1:2015/AMD1:2017, Table L.1;

According to 15.4, the declaration of  $U_{out}$  ~~can~~ may be based on a reduced number of measurements.

#### 7.1.2 Information to be provided, ~~if applicable~~

~~In addition to the above mandatory markings,~~ The following information, if applicable, shall be given either on the controlgear, or be made available in the manufacturer's catalogue or similar:

- items h), i), j) and n) of IEC 61347-1:2015, 7.1;
- for DC supplied controlgear: information regarding voltage polarity reversal protection.

### 7.2 Durability and legibility of markings

IEC 61347-1:2015, 7.2 applies.

### 7.3 Built-in controlgear

For controlgear without an enclosure and classified as built-in (e.g. open printed circuit board assembly), only items a) and b) of IEC 61347-1:2015, 7.1 shall be marked on the controlgear.

Other mandatory markings shall be provided as information to be given either on the controlgear, or made available in the manufacturer's catalogue or similar.

## 8 Terminals

IEC 61347-1:2015, Clause 8 and IEC 61347-1:2015/AMD1:2017, Clause 8 apply.

## 9 ~~Provisions for Earthing~~

IEC 61347-1:2015, Clause 9 applies.