

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Lamp controlgear –  
Part 2-14: Particular requirements for DC and/or AC supplied electronic  
controlgear for fluorescent induction lamps**

**Appareillages de lampes –  
Partie 2-14: Exigences particulières pour les appareillages électroniques  
alimentés en courant continu et/ou alternatif pour les lampes fluorescentes à  
induction**



**THIS PUBLICATION IS COPYRIGHT PROTECTED**  
**Copyright © 2018 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

#### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

#### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

#### IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

#### IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just published details all new publications released. Available online and also once a month by email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

#### IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

#### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

#### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Catalogue IEC - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

#### Recherche de publications IEC -

[webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

#### Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

---

### Lamp controlgear –

**Part 2-14: Particular requirements for DC and/or AC supplied electronic controlgear for fluorescent induction lamps**

### Appareillages de lampes –

**Partie 2-14: Exigences particulières pour les appareillages électroniques alimentés en courant continu et/ou alternatif pour les lampes fluorescentes à induction**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

---

ICS 29.140.99

ISBN 978-2-8322-5448-6

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions.....	7
4 General requirements.....	9
5 General notes on tests.....	9
6 Classification.....	9
7 Marking.....	9
7.1 General.....	9
7.2 Mandatory markings.....	9
7.3 Information to be provided, if applicable.....	10
8 Protection against accidental contact with live parts.....	10
9 Terminals.....	10
10 Provisions for earthing.....	10
11 Moisture resistance and insulation.....	10
12 Electric strength.....	10
13 Thermal endurance test for windings.....	10
14 Fault conditions.....	10
15 Protection of associated components.....	11
15.1 Maximum peak voltage under normal operation conditions.....	11
15.2 Maximum working voltage under normal and abnormal operating conditions.....	11
15.3 Compliance.....	11
15.4 Insulation of input terminals of controllable electronic controlgear.....	11
16 Abnormal conditions.....	12
16.1 Abnormal conditions for DC and/or AC supplied electronic controlgear.....	12
16.2 Additional abnormal conditions for DC only electronic controlgear.....	12
17 Construction.....	12
18 Creepage distances and clearances.....	12
19 Screws, current carrying parts and connections.....	12
20 Resistance to heat, fire and tracking.....	13
21 Resistance to corrosion.....	13
Annex A (normative) Test to establish whether a conductive part is a live part which may cause an electric shock.....	14
Annex B (normative) Particular requirements for thermally protected lamp controlgear.....	15
Annex C (normative) Particular requirements for electronic lamp controlgear with means of protection against overheating.....	16
Annex D (normative) Requirements for carrying out the heating tests of thermally protected lamp controlgear.....	17
Annex E (normative) Use of constant S other than 4 500 in $t_w$ tests.....	18
Annex F (normative) Draught-proof enclosure.....	19
Annex G (normative) Explanation of the derivation of the values of pulse voltages.....	20
Annex H (normative) Tests.....	21

Annex I (normative) Additional requirements for built-in magnetic ballast with double or reinforced insulation .....	22
Annex J (normative) Particular additional safety requirements for DC and/or AC supplied electronic controlgear for emergency lighting .....	23
J.1 General.....	23
J.2 Marking.....	23
J.2.1 Mandatory markings .....	23
J.2.2 Information to be provided if applicable .....	23
J.3 General statement .....	23
J.4 Starting conditions .....	24
J.5 Operating conditions .....	24
J.6 Current .....	24
J.7 EMC immunity.....	24
J.8 Pulse voltage from central battery systems .....	24
J.9 Tests for abnormal conditions .....	24
J.10 Temperature cycling test and endurance test .....	25
J.11 Functional safety (EBLF).....	25
Annex K (informative) Conformity testing during manufacture .....	26
Annex L (normative) Particular additional requirements for controlgear providing SELV .....	27
Annex M (informative) Dielectric strength test voltages for controlgear intended for the use in impulse withstand Category III .....	28
Annex N (normative) Requirements for insulation materials used for double or reinforced insulation .....	29
Annex O (normative) Additional requirements for built-in electronic controlgear with double or reinforced insulation .....	30
Annex P (normative) Creepage distances and clearances and distance through insulation (DTI) for lamp controlgear which are protected against pollution by the use of coating or potting .....	31
Annex Q (informative) Example for C <sub>1</sub> calculation .....	32
Annex R (informative) Concept of creepage distances and clearances.....	33
Annex S (informative) Examples of controlgear insulation coordination .....	34
Annex T (informative) Creepage distances and clearances for controlgear with a higher degree of availability (impulse withstand category III).....	35
Bibliography.....	36
Table 1 – Relation between RMS working voltage and maximum peak voltage .....	11
Table J.1 – Pulse voltages .....	24

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LAMP CONTROLGEAR –

**Part 2-14: Particular requirements for DC and/or AC supplied electronic controlgear for fluorescent induction 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, accept 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 61347-2-14 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lamps and related equipment.

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

FDIS	Report on voting
34C/1374/FDIS	34C/1383/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This document is to be used in conjunction with IEC 61347-1:2015 and IEC 61347-1:2015/AMD1:2017.

NOTE In this document, 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 in 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 document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

This document specifies requirements for fluorescent induction lamp controlgear. The formatting of IEC 61347-2 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 document, 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 controlgear, some cross-referencing has been used.

Where the requirements of any of the clauses of IEC 61347-1 are referred to in this document 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 2-14: Particular requirements for DC and/or AC supplied electronic controlgear for fluorescent induction lamps

#### 1 Scope

This part of IEC 61347 specifies particular safety requirements for electronic controlgear for use on AC supplies up to 1 000 V at 50 Hz or 60 Hz and/or DC supplies with operating frequencies deviating from the supply frequency, associated with fluorescent induction lamps as specified in IEC 62532 and IEC 62639, for high-frequency operation.

For emergency lighting operation, particular requirements for controlgear 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 controlgear operating from non-centralized power supplies are given in IEC 61347-2-7.

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

#### 2 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 60929:2011, *AC and/or DC-supplied electronic control gear for tubular fluorescent lamps – Performance requirements*

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

IEC 61347-2-7:2011, *Lamp controlgear – Part 2-7: Particular requirements for battery supplied electronic controlgear for emergency lighting (self-contained)*  
IEC 61347-2-7:2011/AMD1:2017

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

IEC 62532:2011, *Fluorescent induction lamps – Safety specifications*

IEC 62639:2012, *Fluorescent induction lamps – Performance specification*

#### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61347-1, IEC 62532 and IEC 62639 and the following apply.