IEC 61347-2-12

Edition 2.0 2024-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Controlgear for electric light sources – Safety –
Part 2-12: Particular requirements – DC or AC supplied electronic controlgear for discharge lamps (excluding fluorescent lamps)

Appareillages de commande pour les sources de lumière électriques – Sécurité – Partie 2-12: Exigences particulières – Appareillages électroniques alimentés en courant continu ou alternatif pour lampes à décharge (à l'exclusion des lampes fluorescentes)

IEC 61347-2-12:2024-05(en-fr)

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
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 corrigendum or an amendment might have been published.

IEC publications search - 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 It also gives information on projects, replaced and withdrawn publications.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
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - 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.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

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.

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

Service Clients - 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.

IEC Products & Services Portal - products.iec.ch
Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications, symboles graphiques et le glossaire. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 500 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 25 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

IEC 61347-2-12

Edition 2.0 2024-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Controlgear for electric light sources – Safety –
Part 2-12: Particular requirements – DC or AC supplied electronic controlgear for discharge lamps (excluding fluorescent lamps)

Appareillages de commande pour les sources de lumière électriques – Sécurité – Partie 2-12: Exigences particulières – Appareillages électroniques alimentés en courant continu ou alternatif pour lampes à décharge (à l'exclusion des lampes fluorescentes)

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.140.99

ISBN 978-2-8322-8846-7

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –

Part 2-12: Particular requirements – DC or AC supplied electronic 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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 61347-2-12 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lighting. It is an International Standard.

This second edition cancels and replaces the first edition published in 2005 and Amendment 1:2010. 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) addition of new information requirements (items v), w) and x) of IEC 61347-1:2015, 7.1 and IEC 61347-1:2015/AMD1:2017, 7.1).

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

Draft	Report on voting
34C/1585/CDV	34C/1593/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. The main document types developed by IEC are described in greater detail at 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 in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

The technical requirements in this document compared to IEC 61347-2-12:2005 and IEC 61347-2-12:2005/AMD1:2010 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:—[1] would have been implicitly applicable due to the undated nature of the references to IEC 61347-1 in IEC 61347-2-12:2005 and IEC 61347-2-12:2005/AMD1:2010.

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.

[1] Fourth edition under preparation. Stage at the time of publication IEC FDIS 61347-1:2024.

CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –

Part 2-12: Particular requirements – DC or AC supplied electronic controlgear for discharge lamps (excluding 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 or DC supplies up to 1 000 V. The type of controlgear is a convertor that can contain igniting and stabilizing elements for operation of a discharge lamp under direct current or at a frequency that can deviate from the supply frequency.

NOTE Lamps associated with this type of controlgear are specified in IEC 60188 (High pressure mercury vapour lamps), IEC 60192 (Low pressure sodium vapour lamps), IEC 60662 (High pressure sodium vapour lamps), IEC 61167 (Metal halide lamps) and else for general purpose lighting.

Controlgear for fluorescent lamps and for lamps for special applications such as theatre and vehicles are excluded.

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 60052:2002, *Voltage measurement by means of standard air gaps*

IEC 60417, *Graphical symbols for use on equipment*, available at https://www.graphical-symbols.info/equipment

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

IEC 61347-2-1:2024, *Controlgear for electric light sources – Safety – Part 2-1: Particular requirements for starting devices (other than glow starters)*

3 Terms and definitions

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
output terminal
controlgear terminal, intended to be connected to a high intensity discharge lamp (HID lamp)

Note 1 to entry: This terminal is not understood as a terminal allowing for intermediate operation of e.g. tungsten halogen lamps.

3.2
ignition voltage
highest value of the voltage generated between the output terminals

Note 1 to entry: Basically, the following types of pulses are taken into consideration:

a) continuous RMS working voltage with superimposed non-sinusoidal single pulse;

b) continuous sinusoidal pulse voltage;

c) continuous sinusoidal pulse voltage with superimposed non-sinusoidal single pulse;

d) continuous square wave voltage with ringing sinusoidal voltage at each transition.

Note 2 to entry: The term "pulse" is to be distinguished from the term "surge" which refers to transients occurring in electrical equipment or networks in service.

3.3
spherical spark gap
two metal spheres of the same diameter arranged at a specified distance and used under specified conditions for the measurement of peak voltages in excess of 15 kV

3.4
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.]

3.5
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]

4 General requirements

IEC 61347-1:2015, Clause 4 applies.

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

5 General notes on tests

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.

For information on requalification of products compliant with the previous edition of this document, i.e. IEC 61347-2-12:2005 and IEC 61347-2-12:2005/AMD1:2010, refer to Annex B.

6 Classification

IEC 61347-1:2015, Clause 6 applies.

7 Marking

7.1 Marking and information

7.1.1 Mandatory marking

Controlgear, other than integral controlgear, shall be marked with the following:

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

– a marking identifying the output terminals;

– if the ignition voltage (Clause 16) exceeds 1 500 V:

  - value of the ignition voltage;
  - a marking identifying the terminals having this voltage;
  - for controlgear with an ignition voltage exceeding 5 kV, a flash symbol, in accordance with IEC 60417-5036:2002-10;

– a declaration of the maximum working voltage (RMS) according to Clause 15 between

  - output terminals;
  - any output terminal and earth, if applicable.

The specification of each of these values shall be given in the manufacturer's description in steps of 10 V when the working voltage is equal to or less than 500 V, and in steps of 50 V when the working voltage is higher than 500 V.

The highest of the specified voltage values shall be marked on the controlgear as "output working voltage = xx V" (or "U-OUT = xx V").

In the case of a controlgear consisting of more than one separate unit, a marking on all parts such that the matching components can be identified clearly.

7.1.2 Information to be provided

The following information, if applicable, shall be given either on the controlgear, or be made available in the manufacturer's catalogue or the like:

– items h), i), j), m) n), v), w) and x) of IEC 61347-1:2015, 7.1 and IEC 61347-1:2015/AMD1:2017, 7.1;

– warning to the installer to prevent overheating of controlgear and associated components in a multi controlgear installation mounted in poles, boxes, etc.;

– an indication of the time limitation of ignition voltage.

7.2 Durability and legibility

IEC 61347-1:2015, 7.2 applies.

7.3 Built-in controlgear

For controlgear without enclosure and classified as built-in (e. g. open printed circuit board assemblies), 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 Earthing

IEC 61347-1:2015, Clause 9 applies.

10 Protection against accidental contact with live parts

IEC 61347-1:2015, Clause 10 and IEC 61347-1:2015/AMD1:2017, Clause 10 apply.

11 Moisture resistance and insulation

IEC 61347-1:2015, Clause 11 and IEC 61347-1:2015/AMD1:2017, Clause 11 apply.

12 Electric strength

IEC 61347-1:2015, Clause 12 applies.

13 Thermal endurance test for windings

There are no requirements.

NOTE The requirements of IEC 61347-1:2015, Clause 13 are not applicable.

14 Fault conditions

IEC 61347-1:2015, Clause 14 and IEC 61347-1:2015/AMD1:2017, Clause 14 apply.