

INTERNATIONAL STANDARD



Lamp controlgear –

Controlgear for electric light sources – Safety –

**Part 2-12: Particular requirements – DC or AC supplied electronic ballasts
controlgear for discharge lamps (excluding fluorescent lamps)**

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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-12: Particular requirements – DC or AC supplied electronic ~~ballasts~~ 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.
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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 61347-2-12:2005+AMD1:2010 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 61347-2-12 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.

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INTRODUCTION

~~This standard, and the parts which make up IEC 61347-1, 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 references 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.~~

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.

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

Part 2-12: Particular requirements – DC or AC supplied electronic ~~ballasts~~ controlgear for discharge lamps (excluding fluorescent lamps)

1 Scope

~~This part of IEC 61347 specifies particular general and safety requirements for d.c. or a.c. supplied electronic ballasts. The supply comprises a.c. voltages up to 1000 V at 50 Hz/60 Hz.~~ 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 ~~ballast~~ controlgear is a convertor that ~~may~~ 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 ~~the ballast~~ 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. ~~Ballasts for fluorescent lamps and for lamps for special applications like for theatre and for vehicles are excluded.~~

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

2 Normative references

~~For the purpose of this part of IEC 61347, the normative references given in Clause 2 of IEC 61347-1 apply together with the following:~~

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-DB²⁾, *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.

²⁾ "DB" refers to the IEC on-line database.

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 power~~

~~value of the mean power intended to be provided by an electronic ballast~~

3.1

output terminal

~~ballast~~ 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

U_p

highest value of the voltage generated between the output terminals

Note 1 to entry: Basically, the following types of pulses are ~~comprised~~ 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 ~~nominal~~ 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:

~~5.1~~ ~~Number of specimens~~

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

- ~~— one unit for the tests of Clauses 6 to 12 and 15 to 22;~~
- ~~— one unit for the tests of Clause 14: fault conditions (additional units or components, where necessary, may be required in consultation with the manufacturer).~~

~~5.2~~ ~~Void.~~

- 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

~~The requirements of Clause 6 of IEC 61347-1 apply together with the following additional requirement:~~

~~6.1~~ ~~Ignition voltage~~

~~Ballasts are classified according to ignition voltage:~~

- ~~— up to and including 5 kV;~~
- ~~— greater than 5 kV, and up to and including 10 kV;~~
- ~~— greater than 10 kV, and up to and including 100 kV.~~

~~6.2~~ ~~Void.~~

IEC 61347-1:2015, Clause 6 applies.

7 Marking

~~Ballasts which form an integral part of the luminaire need not be marked. The requirements of 7.2 of IEC 61347-1 apply.~~

7.1 Marking and information

7.1.1 Mandatory marking

~~Ballasts~~ Controlgear, other than integral ~~ballasts~~ controlgear, shall be ~~clearly and durably marked, in accordance with the requirements of 7.1 of IEC 61347-1,~~ with the following mandatory markings:

- 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;

- ~~— for controllable ballasts, the control terminals shall be identified;~~
- ~~— output terminals shall be identified as such;~~
- ~~— the value of the ignition voltage (16), if it exceeds 1 500 V. Connections having this voltage shall be marked; for ballasts with an ignition voltage over 5 kV, this marking shall be a flash symbol, see IEC 60417-5036 (DB:2002-10);~~
- 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 ~~ballast~~ 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, if applicable

~~In addition to the above mandatory markings,~~ The following information, if applicable, shall be given either on the ~~ballast~~ controlgear, ~~if declared below,~~ 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;
- ~~— in the case of a ballast consisting of more than one separate unit, all parts have to be marked such that the matching components can be identified clearly;~~
- warning to the installer to prevent overheating of ~~ballasts~~ controlgear and associated components in a multi-~~ballast~~ controlgear installation mounted in poles, boxes, etc.;
- an indication of the time limitation of ignition voltage
- ~~— If the control terminal is not basic insulated from the mains, this shall be indicated on the ballast.~~

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 ~~Provisions for~~ 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.

15 Protection of associated components

The output voltages measured shall be those between all output terminals and any output terminal and earth.

Under normal and abnormal operating conditions none of these output voltages shall exceed the working voltage as declared by the manufacturer. The ignition phase being defined by switch-on or by the beginning of the ignition process up to the time limit as given in Clause 16 is exempted.

Under normal and abnormal (see Clause 17) conditions, if a time limitation is declared for ignition, it shall not be exceeded.

~~15.3 For controllable electronic ballasts, the control terminal shall be isolated from the mains circuit by an insulation at least equal to basic insulation unless otherwise indicated, see 7.2.~~

16 Ignition voltage

16.1 Instruments

Measurements are made by oscilloscope or electrostatic voltmeters for ignition voltages up to 100 kV.

NOTE 1 A typical electrostatic voltmeter is ~~prescribed~~ specified in IEC 61347-2-1:2024, Figure 1.

Many electronic ~~ballasts~~ controlgear cannot have grounded outputs. In case a differential probe has to be used, it may have an impedance greater than 1 MΩ at up to 10 kHz. For higher frequencies f the probe ~~must~~ shall have an impedance Z greater than a 15 pF ~~capacitor~~ capacitance (C) based on the equation

$$Z = 1/(2\pi f C)$$

The cut-off frequency should be ≥ 30 MHz at -3 dB.

NOTE 2 Above 15 kV a ~~spherical spark~~ sphere-gap can be used, using the procedure based on that given in IEC 60052:2002. See in addition ~~Annex I~~ Annex A of this document. In case of doubt, the measurement with the electrostatic voltmeter ~~shall be~~ is the reference method.

16.2 Ignition voltage limits

The maximum value of the ignition voltage shall not exceed 5 kV when operated at the rated voltage and with a load capacitance of 20 pF (including the capacitance of the probe), or using the circuit shown in IEC 61347-2-1:2024, Figure 1 for either positive or negative pulses, taking into account however, the maximum ignition voltage specified in the relevant lamp data sheets.

~~If not otherwise stated on the relevant lamp data sheets,~~ For electronic ~~ballasts~~ controlgear with ignition voltages over 5 kV, the maximum value shall not exceed ~~$1,3 \times U_p$~~ 130 % of the ignition voltage declared by the manufacturer when operated at the rated supply voltage and with a load capacitance of 20 pF, ~~if not otherwise stated on the relevant lamp data sheets.~~

NOTE In some countries, the ignition voltage is restricted to 4 kV.

16.3 Ignition time cut-out

Electronic ~~ballasts~~ controlgear equipped with cut-outs shall be of such a construction that, in the case of non-igniting lamps, the cut-out interrupts at least the production of the ignition voltage.

After the cut-out has interrupted the circuit, the generation of the ignition voltage is allowed either after disconnecting and reconnecting the ~~ballast~~ controlgear to the supply or by control signal.

Electronic ~~ballasts~~ controlgear with ignition voltages over 5 kV shall be provided with a cut-out for igniting. Time to cut-out is limited:

- for ignition voltages 5 kV to 10 kV to 60 s,
- for ignition voltages > 10 kV
 - a) to 3 s, or
 - b) to 30 s, if declared in the manufacturer's literature.

The cut-out time of 60 s for an ignition voltage from 5 kV to 10 kV can be extended, depending on the lamp type, up to a period of 20 min within which the combined intervals of ignition attempts add up to 60 s, provided it is evident for the maintenance service staff that the controlgear is still trying to ignite.

17 Abnormal conditions

The ~~ballast~~ controlgear shall not impair safety when operated under abnormal conditions at any voltage between 90 % and 110 % of the rated supply voltage or range of rated supply voltage declared by the manufacturer.

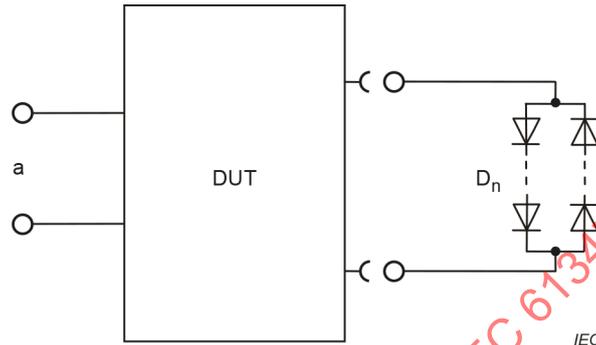
Compliance is checked by the following test.

Each of the following conditions shall be applied with the ~~ballast~~ controlgear operating to the manufacturer's instructions (including a heat sink, if specified) for 1 h:

- a) the lamp is not inserted or does not ignite;
- b) the burner leaks;
- c) the lamp operates, but rectifies.

Condition a) is tested with an open output.

Condition b) is tested with the circuit in Figure 1 (see below).



Key

- a supply
- DUT device under test
- D_n circuit of some diodes in series, and anti-parallel to them, the same number of diodes in series which yields a voltage of 10 V to 15 V across them

Figure 1 – Circuit to test whether ~~ballast~~ the controlgear can withstand a leaking burner

Condition c) is tested with the circuit in Figure 2 (see below).

The lamp in the circuit is replaced by the test circuit shown in Figure 2.

Both current directions ~~have to~~ shall be checked: ~~ballast~~ controlgear terminal 1 with circuit wire 1 and ~~ballast~~ controlgear terminal 1 with circuit wire 2.

The controlgear is stabilized at the ambient temperature of the draught-proof enclosure between 10 °C and 30 °C.

The ~~resistor~~ resistance R_1 ~~has to~~ shall be chosen such that the electrical operating conditions are the same as with the lamp. An appropriate resistance value can be found by the following calculation:

$$R_1 = U_{\text{lamp magn}}^2 / P_{\text{lamp magn}}$$

where

$U_{\text{lamp magn}}$ is the lamp voltage in magnetic ~~ballast~~ controlgear operation;

$P_{\text{lamp magn}}$ is the lamp ~~wattage~~ power in magnetic ~~ballast~~ controlgear operation;

$U_{\text{lamp magn}}$ and $P_{\text{lamp magn}}$ are taken from the relevant lamp standard sheet as long as electronic lamp operation data are not available from the lamp manufacturer.

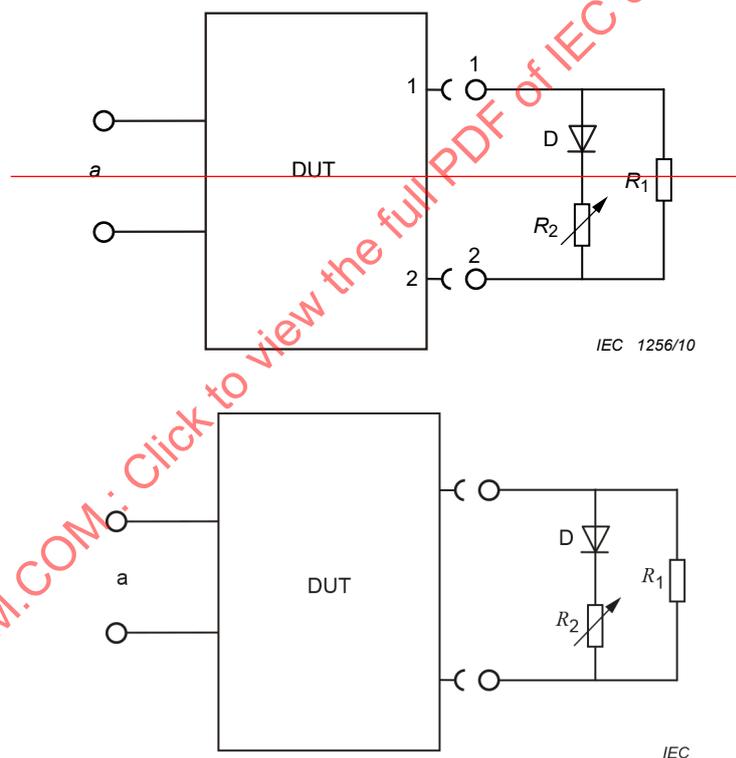
NOTE R_1 changes as a function of the lamp type for the same lamp ~~wattage~~ power.

The test is commenced by varying the ~~resistor~~ resistance R_2 to adjust the current to a value equal to twice the normal lamp current; when this is reached, no further adjustment of R_2 is made.

If after 1 h the internal protection of the controlgear has not operated, the ~~resistor~~ resistance R_2 shall be adjusted to increase the current up to three times maximum the normal lamp current.

If the internal protection of the controlgear operates before the current reaches a value equal to twice the normal lamp current, the controlgear is loaded, varying the resistance R_2 , by a current equal to 0,95 times the value of the lowest current which causes the protective device to operate. The lowest current causing the protective device to operate is determined by initially operating the controlgear at the normal lamp current and gradually increasing the output current in steps of 2 % (each step is maintained until a steady condition is achieved) until the protective device operates. However, the current shall not be adjusted above a value of three times the normal lamp current.

The steady state condition is considered to have been reached when the difference between two consecutive readings of temperature rise over the ambient taken at a half hour interval has not exceeded 1 K.



Key

a supply

DUT device under test

D 100 A, 600 V

R_2 0 Ω to 200 Ω (~~wattage rating of the resistor shall be at least $\frac{1}{2}$ lamp wattage~~)

R_1 $U_{\text{lamp magn}}^2 / P_{\text{lamp magn}}$

~~The above wattage rating of the resistor shall be at least $\frac{1}{2}$ lamp wattage.~~

The power rating of the resistances R_1 and R_2 shall be at least half the lamp power.

Figure 2 – Circuit to test whether ~~ballast~~ the controlgear can withstand rectification

During and at the end of the tests specified under items a) to c), the ~~ballast~~ controlgear shall show no defect impairing safety nor shall any flame, molten material, flammable gases or smoke be produced.

18 Construction

IEC 61347-1:2015, Clause 15 applies.

19 Creepage distances and clearances

IEC 61347-1:2015, Clause 16 and IEC 61347-1:2015/AMD1:2017, Clause 16 apply.

20 Screws, current-carrying parts and connections

IEC 61347-1:2015, Clause 17 applies.

21 Resistance to heat, fire and tracking

IEC 61347-1:2015, Clause 18 applies.

22 Resistance to corrosion

IEC 61347-1:2015, Clause 19 applies.

23 Applicable annexes of IEC 61347-1

The following annexes of IEC 61347-1:2015 apply:

- Annex A (normative) Test to establish whether a conductive part is a live part which may cause an electric shock;
- Annex C (normative) Particular requirements for electronic lamp controlgear with means of protection against overheating;
- Annex D (normative) Requirements for carrying out the heating tests of thermally protected lamp controlgear;
- Annex F (normative) Draught-proof enclosure.

Annex A
(normative)

**~~Test to establish whether a conductive part is a live part
which may cause an electric shock~~**

~~The requirements of Annex A of IEC 61347-1 apply.~~

Annex B
(normative)

~~Particular requirements for thermally protected lamp controlgear~~

~~The requirements of Annex B of IEC 61347-1 do not apply.~~

Annex C
(normative)

**~~Particular requirements for electronic lamp controlgear
with means of protection against overheating~~**

~~The requirements of Annex C of IEC 61347-1 apply.~~

Annex D
(normative)

**~~Information for carrying out the heating tests
of thermally protected lamp controlgear~~**

~~The requirements of Annex D of IEC 61347-1 apply.~~

Annex E
(normative)

~~The use of constants S other than 4 500 in t_w tests~~

~~The requirements of Annex E of IEC 61347-1 do not apply.~~

Annex F
(normative)

Draught-proof enclosure

~~The requirements of Annex F of IEC 61347-1 apply.~~

Annex G
(normative)

Explanation of the derivation of the values of pulse voltages

~~The requirements of Annex G of IEC 61347-1 do not apply.~~

Annex H
(normative)

Tests

~~The requirements of Annex H of IEC 61347-1 do not apply.~~

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Annex A
(~~normative~~informative)

**Precautions to be observed when measuring
with ~~spherical spark~~ sphere-gaps**

A.1 General

~~Because many electronic ballasts do not have outputs where one pole is at earth potential, the direct application of IEC 60052 cannot apply.~~

~~In all cases the following clauses shall be observed together with those requirements of IEC 60052 which are applicable.~~

Clause A.2, Clause A.3, Clause A.4 and Clause A.5 shall be observed together with those requirements of IEC 60052:2002 which are applicable.

NOTE IEC 60052 cannot be applied directly because many electronic controlgear do not have outputs where one pole is at earth potential.

~~I.1~~A.2 Spherical spark gap

The sphere-gap (spherical spark gap) shall be greater than the anticipated breakdown distance and shall be progressively reduced until breakdown occurs (i.e. too small a gap opening up to a non-sparking distance is not a valid method of determining the correct voltage value).

~~I.2~~A.3 Breakdown gap distance

The breakdown gap distance shall be recorded and the 50 % peak voltage value determined from IEC 60052:2002, Table 2.

~~I.3~~A.4 Duty cycle of the electronic ~~ballast~~ controlgear

The duty cycle of the electronic ~~ballast~~ controlgear shall be observed to ensure that overheating/ or failure of the components is not induced.

~~I.4~~A.5 End of test

All safety precautions shall be observed and all voltages shall be discharged at the end of the test.

Annex B (informative)

Schedule of more onerous requirements

Products found compliant with the previous edition of this document do not necessarily require complete requalification for demonstrating compliance with this document. Depending on the nature of the changes introduced, partial retesting or even no retesting may be appropriate, as the case may be.

The following list contains all changes that impose more onerous requirements with respect to the previous edition, i.e. IEC 61347-2-12:2005 and IEC 61347-2-12:2005/AMD1:2010, which should therefore be considered for requalification purposes:

- 7.1.2 (information to be provided): items v), w) and x).

NOTE Being new information requirements, the requirements do not involve testing, but only an update of documentation.

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Bibliography

IEC 60050-151, *International Electrotechnical Vocabulary (IEV) – Part 151: Electrical and magnetic devices*, available at <https://www.electropedia.org>

IEC 60188, *High-pressure mercury vapour lamps – Performance specifications*

IEC 60192, *Low-pressure sodium vapour lamps – Performance specifications*

IEC 60662, *High-pressure sodium vapour lamps – Performance specifications*

IEC 61167, *Metal halide lamps – Performance specification*

IEC 61347-2-12:2005, *Lamp controlgear – Part 2-12: Particular requirements for d.c. or a.c. supplied electronic ballasts for discharge lamps (excluding fluorescent lamps)*

IEC 61347-2-12:2005/AMD1:2010

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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)**

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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.
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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.

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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.

15 Protection of associated components

The output voltages measured shall be those between all output terminals and any output terminal and earth.

Under normal and abnormal operating conditions none of these output voltages shall exceed the working voltage as declared by the manufacturer. The ignition phase being defined by switch-on or by the beginning of the ignition process up to the time limit as given in Clause 16 is exempted.

Under normal and abnormal (see Clause 17) conditions, if a time limitation is declared for ignition, it shall not be exceeded.

16 Ignition voltage

16.1 Instruments

Measurements are made by oscilloscope or electrostatic voltmeters for ignition voltages up to 100 kV.

NOTE 1 A typical electrostatic voltmeter is specified in IEC 61347-2-1:2024, Figure 1.

Many electronic controlgear cannot have grounded outputs. In case a differential probe has to be used, it may have an impedance greater than 1 MΩ at up to 10 kHz. For higher frequencies f the probe shall have an impedance Z greater than a 15 pF capacitance (C) based on the equation

$$Z = 1/(2\pi f C)$$

The cut-off frequency should be ≥ 30 MHz at -3 dB.

NOTE 2 Above 15 kV a sphere-gap can be used, using the procedure based on that given in IEC 60052:2002. See in addition Annex A of this document. In case of doubt, the measurement with the electrostatic voltmeter is the reference method.

16.2 Ignition voltage limits

The maximum value of the ignition voltage shall not exceed 5 kV when operated at the rated voltage and with a load capacitance of 20 pF (including the capacitance of the probe), or using the circuit shown in IEC 61347-2-1:2024, Figure 1 for either positive or negative pulses, taking into account however, the maximum ignition voltage specified in the relevant lamp data sheets.

For electronic controlgear with ignition voltages over 5 kV, the maximum value shall not exceed 130 % of the ignition voltage declared by the manufacturer when operated at the rated supply voltage and with a load capacitance of 20 pF, if not otherwise stated on the relevant lamp data sheets.

NOTE In some countries, the ignition voltage is restricted to 4 kV.

16.3 Ignition time cut-out

Electronic controlgear equipped with cut-outs shall be of such a construction that, in the case of non-igniting lamps, the cut-out interrupts at least the production of the ignition voltage.

After the cut-out has interrupted the circuit, the generation of the ignition voltage is allowed either after disconnecting and reconnecting the controlgear to the supply or by control signal.

Electronic controlgear with ignition voltages over 5 kV shall be provided with a cut-out for igniting. Time to cut-out is limited:

- for ignition voltages 5 kV to 10 kV to 60 s,
- for ignition voltages > 10 kV
 - a) to 3 s, or
 - b) to 30 s, if declared in the manufacturer's literature.

The cut-out time of 60 s for an ignition voltage from 5 kV to 10 kV can be extended, depending on the lamp type, up to a period of 20 min within which the combined intervals of ignition attempts add up to 60 s, provided it is evident for the maintenance service staff that the controlgear is still trying to ignite.

17 Abnormal conditions

The controlgear shall not impair safety when operated under abnormal conditions at any voltage between 90 % and 110 % of the rated supply voltage or range of rated supply voltage declared by the manufacturer.

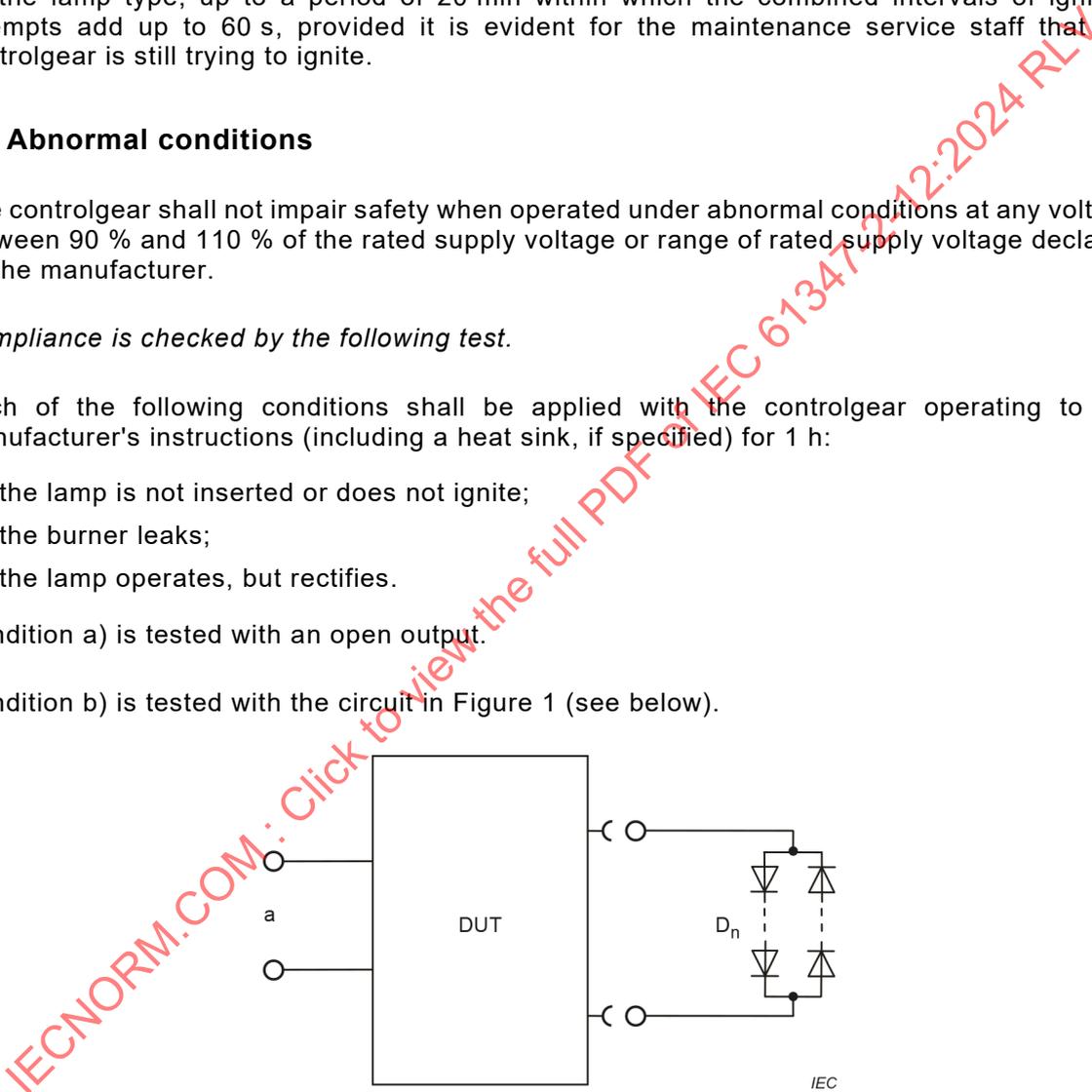
Compliance is checked by the following test.

Each of the following conditions shall be applied with the controlgear operating to the manufacturer's instructions (including a heat sink, if specified) for 1 h:

- a) the lamp is not inserted or does not ignite;
- b) the burner leaks;
- c) the lamp operates, but rectifies.

Condition a) is tested with an open output.

Condition b) is tested with the circuit in Figure 1 (see below).



Key

- a supply
- DUT device under test
- D_n circuit of some diodes in series, and anti-parallel to them, the same number of diodes in series which yields a voltage of 10 V to 15 V across them

Figure 1 – Circuit to test whether the controlgear can withstand a leaking burner

Condition c) is tested with the circuit in Figure 2 (see below).

The lamp in the circuit is replaced by the test circuit shown in Figure 2.

Both current directions shall be checked: controlgear terminal 1 with circuit wire 1 and controlgear terminal 1 with circuit wire 2.

The controlgear is stabilized at the ambient temperature of the draught-proof enclosure between 10 °C and 30 °C.

The resistance R_1 shall be chosen such that the electrical operating conditions are the same as with the lamp. An appropriate resistance value can be found by the following calculation:

$$R_1 = U_{\text{lamp magn}}^2 / P_{\text{lamp magn}}$$

where

$U_{\text{lamp magn}}$ is the lamp voltage in magnetic controlgear operation;

$P_{\text{lamp magn}}$ is the lamp power in magnetic controlgear operation;

$U_{\text{lamp magn}}$ and $P_{\text{lamp magn}}$ are taken from the relevant lamp standard sheet as long as electronic lamp operation data are not available from the lamp manufacturer.

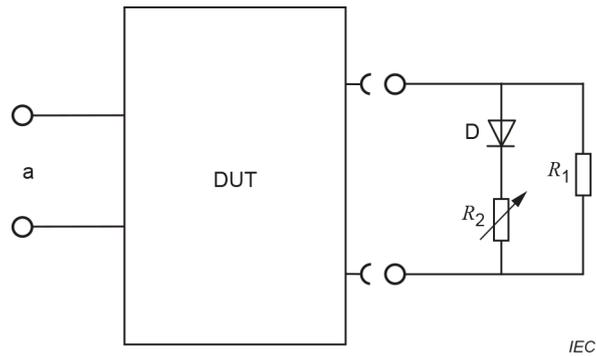
NOTE R_1 changes as a function of the lamp type for the same lamp power.

The test is commenced by varying the resistance R_2 to adjust the current to a value equal to twice the normal lamp current; when this is reached, no further adjustment of R_2 is made.

If after 1 h the internal protection of the controlgear has not operated, the resistance R_2 shall be adjusted to increase the current up to three times maximum the normal lamp current.

If the internal protection of the controlgear operates before the current reaches a value equal to twice the normal lamp current, the controlgear is loaded, varying the resistance R_2 , by a current equal to 0,95 times the value of the lowest current which causes the protective device to operate. The lowest current causing the protective device to operate is determined by initially operating the controlgear at the normal lamp current and gradually increasing the output current in steps of 2 % (each step is maintained until a steady condition is achieved) until the protective device operates. However, the current shall not be adjusted above a value of three times the normal lamp current.

The steady state condition is considered to have been reached when the difference between two consecutive readings of temperature rise over the ambient taken at a half hour interval has not exceeded 1 K.



Key

a supply

DUT device under test

D 100 A, 600 V

R_2 0 Ω to 200 Ω

R_1 $U_{\text{lamp magn}}^2 / P_{\text{lamp magn}}$

The power rating of the resistances R_1 and R_2 shall be at least half the lamp power.

Figure 2 – Circuit to test whether the controlgear can withstand rectification

During and at the end of the tests specified under items a) to c), the controlgear shall show no defect impairing safety nor shall any flame, molten material, flammable gases or smoke be produced.

18 Construction

IEC 61347-1:2015, Clause 15 applies.

19 Creepage distances and clearances

IEC 61347-1:2015, Clause 16 and IEC 61347-1:2015/AMD1:2017, Clause 16 apply.

20 Screws, current-carrying parts and connections

IEC 61347-1:2015, Clause 17 applies.

21 Resistance to heat, fire and tracking

IEC 61347-1:2015, Clause 18 applies.

22 Resistance to corrosion

IEC 61347-1:2015, Clause 19 applies.

23 Applicable annexes of IEC 61347-1

The following annexes of IEC 61347-1:2015 apply:

- Annex A (normative) Test to establish whether a conductive part is a live part which may cause an electric shock;
- Annex C (normative) Particular requirements for electronic lamp controlgear with means of protection against overheating;
- Annex D (normative) Requirements for carrying out the heating tests of thermally protected lamp controlgear;
- Annex F (normative) Draught-proof enclosure.

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Annex A (informative)

Precautions to be observed when measuring with sphere-gaps

A.1 General

Clause A.2, Clause A.3, Clause A.4 and Clause A.5 shall be observed together with those requirements of IEC 60052:2002 which are applicable.

NOTE IEC 60052 cannot be applied directly because many electronic controlgear do not have outputs where one pole is at earth potential.

A.2 Spherical spark gap

The sphere-gap (spherical spark gap) shall be greater than the anticipated breakdown distance and shall be progressively reduced until breakdown occurs (i.e. too small a gap opening up to a non-sparking distance is not a valid method of determining the correct voltage value).

A.3 Breakdown gap distance

The breakdown gap distance shall be recorded and the 50 % peak voltage value determined from IEC 60052:2002, Table 2.

A.4 Duty cycle of the electronic controlgear

The duty cycle of the electronic controlgear shall be observed to ensure that overheating or failure of the components is not induced.

A.5 End of test

All safety precautions shall be observed and all voltages shall be discharged at the end of the test.

Annex B (informative)

Schedule of more onerous requirements

Products found compliant with the previous edition of this document do not necessarily require complete requalification for demonstrating compliance with this document. Depending on the nature of the changes introduced, partial retesting or even no retesting may be appropriate, as the case may be.

The following list contains all changes that impose more onerous requirements with respect to the previous edition, i.e. IEC 61347-2-12:2005 and IEC 61347-2-12:2005/AMD1:2010, which should therefore be considered for requalification purposes:

- 7.1.2 (information to be provided): items v), w) and x).

NOTE Being new information requirements, the requirements do not involve testing, but only an update of documentation.

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Bibliography

IEC 60050-151, *International Electrotechnical Vocabulary (IEV) – Part 151: Electrical and magnetic devices*, available at <https://www.electropedia.org>

IEC 60188, *High-pressure mercury vapour lamps – Performance specifications*

IEC 60192, *Low-pressure sodium vapour lamps – Performance specifications*

IEC 60662, *High-pressure sodium vapour lamps – Performance specifications*

IEC 61167, *Metal halide lamps – Performance specification*

IEC 61347-2-12:2005, *Lamp controlgear – Part 2-12: Particular requirements for d.c. or a.c. supplied electronic ballasts for discharge lamps (excluding fluorescent lamps)*

IEC 61347-2-12:2005/AMD1:2010

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

**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)**

AVANT-PROPOS

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L'IEC 61347-2-12 a été établie par le sous-comité 34C: Appareils auxiliaires pour lampes, du comité d'études 34 de l'IEC: Éclairage. Il s'agit d'une Norme internationale.

Cette seconde édition annule et remplace la première édition parue en 2005 et l'Amendement 1:2010. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) ajout de références datées le cas échéant;
- b) clarification des numéros d'entités d'échantillonnage;
- c) ajout de nouvelles exigences relatives aux informations (marquages v), w) et x) indiqués dans l'IEC 61347-1:2015, 7.1 et l'IEC 61347-1:2015/AMD1:2017, 7.1).

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
34C/1585/CDV	34C/1593/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications/.

Le présent document est destiné à être utilisé conjointement avec l'IEC 61347-1:2015 et l'IEC 61347-1:2015/AMD1:2017. Lorsque les exigences de l'un des articles de l'IEC 61347-1:2015 et de l'IEC 61347-1:2015/AMD1:2017 sont citées en référence dans le présent document par la phrase "L'IEC 61347-1:2015, Article n et l'IEC 61347-1:2015/AMD1:2017, Article n s'appliquent", cette phrase signifie que l'ensemble des exigences de cet article de l'IEC 61347-1:2015 et de l'IEC 61347-1:2015/AMD1:2017 s'appliquent, excepté les exigences qui ne s'appliquent explicitement pas au type particulier d'appareillage couvert par le présent document.

NOTE Dans le présent document, les caractères d'imprimerie suivants sont utilisés:

- *déclarations de conformité: caractères italiques.*

Une liste de toutes les parties de la série IEC 61347, publiées sous le titre général *Appareillages de commande pour les sources de lumière électriques – Sécurité*, se trouve sur le site web de l'IEC.

Les futurs documents de cette série porteront le nouveau titre général cité ci-dessus. Le titre des documents qui existent déjà dans cette série sera mis à jour lors de leur prochaine édition.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé, ou
- révisé.

INTRODUCTION

Les exigences techniques spécifiées dans le présent document par rapport à l'IEC 61347-2-12:2005 et à l'IEC 61347-2-12:2005/AMD1:2010 n'ont pratiquement pas évolué. Néanmoins, l'élaboration d'une nouvelle édition du présent document était inévitable, car sans l'ajout de références datées à l'IEC 61347-1:2015 et l'IEC 61347-1:2015/AMD1:2017, l'applicabilité de la quatrième édition de l'IEC 61347-1:—¹ aurait été implicite en raison des références à l'IEC 61347-1 non datées dans l'IEC 61347-2-12:2005 et l'IEC 61347-2-12:2005/AMD1:2010.

Lorsque le présent document fait référence à l'un des articles de l'IEC 61347-1:2015 et l'IEC 61347-1:2015/AMD1:2017, celui-ci spécifie le degré d'applicabilité de cet article. Des exigences supplémentaires sont également fournies, lorsque cela est nécessaire.

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¹ Quatrième édition en cours d'élaboration. Stade à la date de publication IEC FDIS 61347-1:2024.

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)

1 Domaine d'application

La présente partie de l'IEC 61347 spécifie les exigences de sécurité des appareillages électroniques destinés à être utilisés avec des alimentations jusqu'à 1 000 V en courant alternatif à 50 Hz ou 60 Hz ou avec des alimentations jusqu'à 1 000 V en courant continu. Le type d'appareillage est un convertisseur qui peut contenir des éléments d'amorçage et de stabilisation pour le fonctionnement d'une lampe à décharge en courant continu ou à une fréquence pouvant s'écarter de la fréquence d'alimentation.

NOTE Les lampes associées à ce type d'appareillage sont spécifiées dans l'IEC 60188 (Lampes à vapeur de mercure à haute pression), l'IEC 60192 (Lampes à vapeur de sodium à basse pression), l'IEC 60662 (Lampes à vapeur de sodium à haute pression), l'IEC 61167 (Lampes aux halogénures métalliques), et dans d'autres pour l'éclairage général.

Les appareillages pour lampes fluorescentes et pour lampes destinées à des applications spéciales, comme le théâtre et les véhicules, sont exclus.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60052:2002, *Mesure de tension au moyen des éclateurs à sphères normalisés*

IEC 60417, *Symboles graphiques utilisables sur le matériel*, disponible à l'adresse <https://www.graphical-symbols.info/equipment>

IEC 61347-1:2015, *Appareillages de lampes – Partie 1: Exigences générales et exigences de sécurité*

IEC 61347-1:2015/AMD1:2017

IEC 61347-2-1:2024, *Appareillages de commande pour les sources de lumière électriques – Sécurité – Partie 2-1: Exigences particulières pour les dispositifs d'amorçage (autres que starters à lueur)*