

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Controlgear for electric light sources – Safety –  
Part 2-2: Particular requirements – Electronic step-down convertors for filament  
lamps**

**Appareillages de commande pour les sources de lumière électriques – Sécurité –  
Partie 2-2: Exigences particulières – Convertisseurs abaisseurs électroniques  
pour lampes à incandescence**

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**CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –****Part 2-2: Particular requirements – Electronic  
step-down convertors for filament lamps**

## FOREWORD

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

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

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

- a) alignment with respect to the fourth edition of IEC 61347-1;
  - introduction of dated references to the fourth edition of IEC 61347-1 as appropriate;
  - deletion of the clauses and subclauses which are either no longer relevant or now covered in IEC 61347-1;

- b) scope extension to 1 500 V for direct current;
- c) scope clarification;
- d) deletion of unused definitions;
- e) revision of information and marking requirements;
- f) revision of compliance conditions for the measurement of the output voltage during fault condition testing and during thermal testing.

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

Draft	Report on voting
34C/1597/FDIS	34C/1602/RVD

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

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

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

This document is intended to be used in conjunction with IEC 61347-1:2024. Where the requirements of any of the clauses of IEC 61347-1:2024 are referred to in this document by the phrase "IEC 61347-1:2024, Clause n applies", this phrase is interpreted as meaning that all the requirements of the clause in question of IEC 61347-1:2024 apply, except any which are clearly inapplicable to the specific type of controlgear covered by this document.

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

<https://standards.iteh.ai/catalog/standards/iec/948c3bdc-65ed-4260-8769-a383ec79ad7e/iec-61347-2-2-2024>

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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

This document specifies safety requirements for filament lamp controlgear. All general requirements, which apply to controlgear for electric light sources in general, regardless of the specific type of light source in question, are contained in IEC 61347-1. The corresponding general requirements apply to filament lamp controlgear by clause-wise reference in this document to any of the clauses of IEC 61347-1, thereby specifying the extent to which such a clause is applicable and the order in which the tests are performed.

In the same way, further documents exist specifying individual safety requirements for different types of controlgear related to different types of electric light sources which, together with this document, constitute the IEC 61347-2 series.

Any such parts of the IEC 61347-2 series are the leading documents for the safety assessment of the corresponding type of controlgear; it is not IEC 61347-1.

Also, all parts of the IEC 61347-2 series are self-contained and therefore typically do not include references to each other.

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# CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –

## Part 2-2: Particular requirements – Electronic step-down convertors for filament lamps

### 1 Scope

This part of IEC 61347 specifies safety requirements for electronic step-down convertors for use on DC supplies of up to 1 500 V or AC supplies of up to 1 000 V at 50 Hz or 60 Hz, and with a rated output voltage  $\leq 50$  V (RMS) at a frequency deviating from the supply frequency, or 120 V ripple free DC between conductors and between any conductor and earth, associated with tungsten-halogen lamps as specified in IEC 60357, and other filament lamps.

NOTE 1 The limits of 50 V (alternating current) and 120 V (direct current) are in accordance with the extra-low-voltage (ELV) band of IEC 61140:2016.

NOTE 2 Performance requirements are covered by IEC 61047.

NOTE 3 Such step-down convertors can also be used for electric sources producing optical radiation with the same technology used for purposes different than illumination and producing radiation other than visible spectrum.

### 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 61347-1:2024, *Controlgear for electric light sources – Safety – Part 1: General requirements*

### 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

##### **electronic step-down convertor** convertor

unit inserted between the supply and one or more tungsten-halogen or other filament lamps which serves to supply the lamp(s) with its (their) rated voltage, generally at high frequency

Note 1 to entry: The unit can consist of one or more separate components and can include means for dimming, correcting the power factor and suppressing radio interference.

Note 2 to entry: Whenever the term "controlgear" is used in IEC 61347-1, this includes convertors, being a specific type of controlgear.



## 4 General requirements

IEC 61347-1:2024, Clause 4 applies, together with the following:

NOTE Convertors incorporated in an enclosure provided with an integral plug as the means of connection of the electrical supply, also known as plug-in convertors, are considered independent controlgear.

## 5 General notes on tests

IEC 61347-1:2024, Clause 5 applies, together with the following:

Tests are carried out at the most onerous length of the output wire or cable being the minimum or the maximum length according to the declaration of the manufacturer. If no minimum or maximum length is declared, cable lengths of 20 cm or 200 cm shall be chosen. It is possible to use two twisted wires or a cable H03VV-F. The cross-section of the conductors shall be chosen according to the rated power and the current density shall not exceed 5 A/mm<sup>2</sup> in normal use.

For information on requalification of products compliant with the previous editions of this document, i. e. IEC 61347-2-2:2011, refer to Annex A.

## 6 Information and marking

### 6.1 Information and marking items

#### 6.1.1 Mandatory marking

Convertors, other than convertors covered by 6.3, shall be marked with the following, as applicable:

- items a1), a2), b1), c2), e1), e2), f1), f3), f4), g2), g3), j2), j4), k1), l1) and p) of IEC 61347-1:2024, 6.2; symbols according to item o) of IEC 61347-1:2024, 6.2, shall be used, as applicable.

#### 6.1.2 Information to be provided

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

- items b2), b3), c1), c3), c4), c5), c6), c7), e3), f2), g1), h), i), j1), j3), j5), k2), l2), m) and n3) of IEC 61347-1:2024, 6.2;
- a declaration of the allowed length of the output wire or cable, if it is not between 20 cm and 200 cm.

### 6.2 Durability and legibility of marking

IEC 61347-1:2024, 6.3 applies.

### 6.3 Built-in controlgear without an enclosure and integral controlgear

IEC 61347-1:2024, 6.4 applies.

## 7 Terminals

IEC 61347-1:2024, Clause 7 applies.

## **8 Earthing**

IEC 61347-1:2024, Clause 8 applies.

## **9 Protection against accidental contact with hazardous live parts**

IEC 61347-1:2024, Clause 9 applies.

## **10 Insulation resistance and electric strength**

IEC 61347-1:2024, Clause 10 applies.

## **11 Fault conditions**

IEC 61347-1:2024, Clause 11 applies, together with the following compliance condition in addition to IEC 61347-1:2024, 11.4.2:

The output voltage of the convertor shall not exceed the ELV limit after applying the fault condition.

The output voltage of the convertor shall not exceed 115 % of the rated output voltage or 115 % of the maximum of the rated output voltage range. Voltages measured within 1 s after applying the fault condition are disregarded.

## **12 Construction**

IEC 61347-1:2024, Clause 12 applies.

## **13 Creepage distances, clearances and distances through insulation**

IEC 61347-1:2024, Clause 13 applies.

## **14 Screws, current-carrying parts and connections**

IEC 61347-1:2024, Clause 14 applies.

## **15 Resistance to heat, fire and tracking**

IEC 61347-1:2024, Clause 15 applies.