

Australian/New Zealand Standard™

## Lamp controlgear

**Part 2.10: Particular requirements for electronic invertors and converters for high-frequency operation of cold start tubular discharge lamps (neon tubes) (IEC 61347-2-10:2009 (ED. 1.1) MOD)**

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AS/NZS 61347.2.10:2019

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- Australian Industry Group
- Consumers' Federation of Australia
- Department of the Environment and Energy (Australian Government)
- Electrical Compliance Testing Association of Australia
- Electrical Regulatory Authorities Council
- IES: The Lighting Society
- Joint Accreditation System of Australia and New Zealand
- Lighting Council Australia
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## Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-041, Lamps and Related Equipment to supersede AS/NZS 61347.2.10:2004 *Lamp controlgear, Part 2.10: Particular requirements for electronic invertors and convertors for high-frequency operation of cold start tubular discharge lamps (neon tubes) (IEC 61347-2-10:2000 MOD)*.

The objective of this Standard is to specify particular requirements for electronic invertors and convertors for high-frequency operation of tubular cold-cathode discharge lamps used in signs and luminous discharge tube installations and operating with an output voltage exceeding 1 000 V but not exceeding 10 000 V for direct connection to supply voltages not exceeding 1 000 V at 50 Hz or 60 Hz or 1 000 V d.c.

This Standard is an adoption with national modifications, and has been reproduced from, IEC 61347-2-10:2000+AMD1:2009 CSV, (ED. 1.1) *Lamp controlgear — Part 2-10: Particular requirements for electronic invertors and convertors for high-frequency operation of cold start tubular discharge lamps (neon tubes)*. [Appendix ZZ](#) lists the variations for the application of this Standard in Australia and New Zealand.

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- (a) In the source text “this part of IEC 61347” should read “this Australian Standard or Australian/New Zealand Standard”.
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The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an ‘informative’ appendix or annex is only for information and guidance.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LAMP CONTROLGEAR –

**Part 2-10: Particular requirements for electronic invertors  
and convertors for high-frequency operation of cold start  
tubular discharge lamps (neon tubes)**

## FOREWORD

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International Standard IEC 61347-2-10 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lamps and related equipment.

This consolidated version of IEC 61347-2-10 consists of the first edition (2000) [documents 34C/507/FDIS and 34C/521/RVD] and its amendment 1 (2008) [documents 34C/849/FDIS and 34C/859/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 1.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

This standard shall be used in conjunction with IEC 61347-1. It was established on the basis of the first edition (2000) of that standard.

This part 2 supplements or modifies the corresponding clauses in IEC 61347-1, so as to convert that publication into the IEC Standard: Particular requirements for electronic invertors and convertors for high-frequency operation of cold start tubular discharge lamps (neon tubes)

NOTE In this standard, the following print types are used:

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- NOTES: Explanatory matter: in smaller roman type.

Annexes A, B, C, D, E, F, H and I form an integral part of this standard.

IEC 61347 consists of the following parts, under the general title: *Lamp controlgear*.

- Part 1: General and safety requirements
- Part 2-1: Particular requirements for starting devices (other than glow starters)
- Part 2-2: Particular requirements for d.c. or a.c. supplied electronic step-down convertors for filament lamps
- Part 2-3: Particular requirements for a.c. supplied electronic ballasts for fluorescent lamps
- Part 2-4: Particular requirements for d.c. electronic ballasts for general lighting
- Part 2-5: Particular requirements for d.c. supplied electronic ballasts for public transport lighting
- Part 2-6: Particular requirements for d.c. supplied electronic ballasts for aircraft lighting
- Part 2-7: Particular requirements for d.c. supplied electronic ballasts for emergency lighting
- Part 2-8: Particular requirements for ballasts for fluorescent lamps
- Part 2-9: Particular requirements for ballasts for discharge lamps (excluding fluorescent lamps)
- Part 2-10: Particular requirements for electronic invertors and convertors for high frequency operation of cold start tubular discharge lamps (neon tubes)
- Part 2-11: Particular requirements for miscellaneous electronic circuits used with luminaires

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

## INTRODUCTION

This part of IEC 61347, 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 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.

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## LAMP CONTROLGEAR –

### Part 2-10: Particular requirements for electronic invertors and converters for high-frequency operation of cold start tubular discharge lamps (neon tubes)

#### 1 Scope

This part of IEC 61347 specifies particular requirements for electronic invertors and converters for high-frequency operation of tubular cold-cathode discharge lamps used in signs and luminous discharge tube installations and operating with an output voltage exceeding 1 000 V but not exceeding 10 000 V for direct connection to supply voltages not exceeding 1 000 V at 50 Hz or 60 Hz or 1 000 V d.c.

NOTE 1 In Japan, the output voltage of 15 000 V is acceptable.

The requirements for two types of invertors and converters, types A and B, are specified as follows:

- Type A unit: an invertor or converter operating within the frequency range 20 kHz to 50 kHz, and having an output voltage (between terminals) not exceeding 5 000 V peak, a maximum output current limited to 35 mA (r.m.s.) and 50 mA (peak value). The supply voltage does not exceed 250 V at 50 Hz or 60 Hz or 250 V d.c.

NOTE 2 The output current of a type A unit may be considered as not presenting an electric shock hazard due to the limits on the current and frequency range.

NOTE 3 In Japan, the output voltage of 15 000 V is acceptable.

- Type B unit: an invertor or converter having a no-load output voltage not exceeding 5 000 V to earth or 10 000 V between terminals, operating within the frequency range 10 kHz to 100 kHz with a maximum output current limited to 200 mA (r.m.s.) and 400 mA (peak value).

NOTE 4 Type B units require additional protection in the output circuit.

NOTE 5 In Japan, a type B unit exceeding 50 mA and/or the secondary grounded is not acceptable.

In order to check the safety of invertors or converters, it is necessary to check their performance. However, since no standardization of the characteristics of neon tubes exists, reference loads are specified in this standard to ensure reproducible test results.

The rated maximum operating temperature of the winding,  $t_w$ , is not applicable to this standard.

#### 2 Normative references

For the purpose of this part of IEC 61347, the normative references given in clause 2 of IEC 61347-1 which are mentioned in this standard apply, together with the following normative references:

IEC 61347-1, *Lamp controlgear – Part 1: General and safety requirements*

ISO 3864:1984, *Safety colours and safety signs*