

Australian/New Zealand Standard™

**Auxiliaries for lamps—D.C. or A.C.
supplied electronic step-down
convertors for filament lamps—
General and safety requirements
(IEC 61046:1993, MOD)**



Standards Australia



STANDARDS
NEW ZEALAND
Patene Aotearoa

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Association of Consulting Engineers Australia
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Electrical Compliance Testing Association of Australia
Electrical Regulatory Authorities Council (Australia)
Energy Efficiency and Conservation Authority of New Zealand
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-041, Lamps and Related Equipment.

The objective of this Standard is to provide the lighting industry with general and safety requirements for electronic step-down convertors for use on d.c. supplies up to 250 V or a.c. supplies up to 1 000 V and rated output voltage less than or equal to 50 V r.m.s., for use with tungsten-halogen or other filament lamps.

This Standard has been adopted with national modifications from IEC 61046:1993, *Auxiliaries for lamps—D.C. or A.C. supplied electronic step-down convertors for filament lamps—General and safety requirements*, including Amendment 1:1995. The changes made by Amendment 1 are indicated by a marginal bar against each clause, table or figure that is affected.

Variations to IEC 61046:1993 are indicated at appropriate places throughout this Standard. Strikethrough identifies IEC tables, figures and passages of text which, for the purpose of this Australian/New Zealand Standard, are deleted. Where Australian/New Zealand tables, figures or passages of text are added, each is set in its proper place and identified by shading. The variations are listed in Annex ZZ for easy reference.

A reference to an International Standard identified in the Normative References Clause by strikethrough (~~example~~) is replaced by a reference to the Australian or Australian/New Zealand Standard(s) listed immediately thereafter and identified by shading (example). Where the struck-through referenced document and the referenced Australian or Australian/New Zealand Standard are identical, this is indicated in parenthesis after the title of the latter.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (b) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.
- (c) A full point should be substituted for a comma when referring to a decimal marker.
- (d) French text on figures should be ignored.

In this Standard, the following print types are used:

- (i) Requirements proper: in arial type.
- (ii) *Test specifications: in italic type.*
- (iii) Notes: in smaller arial type.

The term 'normative' has been used in this Standard to define the application of the annex to which it applies. A 'normative' annex is an integral part of a Standard.

To assist the reader, editorial corrections have been made to Table C.6 and to Table C.7 Item 4)c).

Attention is drawn to Electromagnetic Compatibility (EMC) schemes introduced in their respective countries by the Australian Communications Authority (ACA) and the Ministry of Economic Development, New Zealand to manage the use and performance of devices that either intentionally or unintentionally emit electromagnetic energy in the radiofrequency spectrum. Mandated Standards form an integral part of the EMC compliance schemes. Electrical lighting products fall within the scope of AS/NZS 4051, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*. AS/NZS 4051 has been reproduced from IEC/CISPR 15 (same title) but contains some changes to limits to protect local radio services.

Information on EMC compliance for lighting equipment is to be found on the Internet at <http://www.aca.gov.au/standards/emc.htm> and for NZ at <http://www.moc.govt.nz/rsm>

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INTRODUCTION

This standard covers general and safety requirements for d.c. or a.c. electronic step-down converters for filament lamps generally operating with a frequency deviating from the supply frequency.

Performance requirements are the subject of IEC 61047.

NOTE – Safety requirements ensure that electrical equipment constructed in accordance with these requirements, does not endanger the safety of persons, domestic animals or property when properly installed and maintained and used in applications for which it is intended.

This standard refers to d.c. or a.c. supplied electronic step-down converters for use with tungsten-halogen lamps as specified in IEC 60357 and other filament lamps.

Tests in this standard are type tests. Requirements for testing individual converters during production are not included.

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Section 1: General requirements**1 General****1.1 Scope**

This International Standard specifies general and safety requirements for electronic step-down convertors for use on d.c. supplies up to 250 V or a.c. supplies up to 1 000 V at 50 Hz or 60 Hz and rated output voltage ≤ 50 V r.m.s. at a frequency deviating from the supply frequency or $\leq 50 \sqrt{2}$ V unsmoothed d.c. between conductors or between any conductor and earth, associated with tungsten-halogen lamps as specified in IEC 60357 and other filament lamps.

NOTE – The limit of 50 V rated output voltage is in accordance with Band 1 of IEC 60449.

Particular requirements for electronic step-down convertors with means of protection against overheating are given in annex B.

Particular requirements for stationary independent SELV convertors, which are part of the wiring in installations, are given in annex C.

Plug-in convertors, being part of the luminaire, are covered as built-in convertors together with the additional requirements of the luminaire standard.

NOTE – These proposals have also been submitted to SC 14D for introduction in IEC 60742.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

References to International Standards that are struck through in this Clause are replaced by references to equivalent Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is appropriately identified.

1.2.1 IEC standards

IEC 60051, *Direct acting indicating analogue electrical-measuring instruments and their accessories*