

STN	Ovládacie zariadenia svetelných zdrojov Bezpečnosť Časť 2-10: Osobitné požiadavky Elektronické riadiace zariadenia pre vysokofrekvenčnú prevádzku trubicových výbojok so studeným štartom (neónových trubíc)	STN EN IEC 61347-2-10 36 0511
------------	---	---

Controlgear for electric light sources - Safety - Part 2-10: Particular requirements - Electronic controlgear for high-frequency operation of tubular cold-cathode discharge lamps (neon tubes)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/25

Obsahuje: EN IEC 61347-2-10:2024, IEC 61347-2-10:2024

Oznámením tejto normy sa od 31.12.2027 ruší
STN EN 61347-2-10 (36 0511) z novembra 2002

140132

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2025
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD

EN IEC 61347-2-10

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2024

ICS 29.140.99

Supersedes EN 61347-2-10:2001; EN 61347-2-10:2001/A1:2009; EN 61347-2-10:2001/corrigendum Dec. 2010

English Version

**Controlgear for electric light sources - Safety - Part 2-10:
Particular requirements - Electronic controlgear for high-
frequency operation of tubular cold-cathode discharge lamps
(neon tubes)
(IEC 61347-2-10:2024)**

Appareillages de commande pour les sources de lumière
électriques - Sécurité - Partie 2-10: Exigences particulières
- Appareillages électroniques destinés à l'alimentation en
haute fréquence des lampes à décharge tubulaires à
cathode froide (tubes néon)
(IEC 61347-2-10:2024)

Betriebsgeräte für elektrische Lichtquellen - Sicherheit - Teil
2-10: Besondere Anforderungen - elektronische
Wechselrichter und Konverter für Hochfrequenzbetrieb von
röhrenförmigen Kaltstart-Entladungslampen (Neonröhren)
(IEC 61347-2-10:2024)

This European Standard was approved by CENELEC on 2024-10-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61347-2-10:2024 (E)**European foreword**

The text of document 34C/1584/CDV, future edition 2 of IEC 61347-2-10, prepared by SC 34C "Auxiliaries for lamps" of IEC/TC 34 "Lighting" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61347-2-10:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2025-12-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2027-12-31 document have to be withdrawn

This document supersedes EN 61347-2-10:2001 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 61347-2-10:2024 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61347-2-10:2000 NOTE Approved as EN 61347-2-10:2001 (not modified)

IEC 61347-2-10:2000/A1:2008 NOTE Approved as EN 61347-2-10:2001/A1:2009 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC 60598-1	2020	Luminaires - Part 1: General requirements and tests	EN IEC 60598-1	2021
			+ A11	2022
IEC 61347-1	2015	Lamp controlgear - Part 1: General and safety requirements	EN 61347-1	2015
+ A1	2017		+ A1	2021
ISO 3864-1	2011	Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings	-	-



IEC 61347-2-10

Edition 2.0 2024-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Controlgear for electric light sources – Safety –
Part 2-10: Particular requirements – Electronic controlgear for high-frequency
operation of tubular cold-cathode discharge lamps (neon tubes)**

**Appareillages de commande pour les sources de lumière électriques – Sécurité –
Partie 2-10: Exigences particulières – Appareillages électroniques destinés à
l'alimentation en haute fréquence des lampes à décharge tubulaires à cathode
froide (tubes néon)**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2024 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
 3, rue de Varembe
 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 61347-2-10

Edition 2.0 2024-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Controlgear for electric light sources – Safety –
Part 2-10: Particular requirements – Electronic controlgear for high-frequency
operation of tubular cold-cathode discharge lamps (neon tubes)**

**Appareillages de commande pour les sources de lumière électriques – Sécurité –
Partie 2-10: Exigences particulières – Appareillages électroniques destinés à
l'alimentation en haute fréquence des lampes à décharge tubulaires à cathode
froide (tubes néon)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.140.99

ISBN 978-2-8322-8839-9

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
4 General requirements	9
5 General notes on tests	9
6 Classification.....	10
7 Marking	10
7.1 Marking and information.....	10
7.1.1 Mandatory marking	10
7.1.2 Information to be provided	10
7.2 Durability and legibility	11
7.3 Built-in controlgear.....	11
8 Terminals	11
9 Earthing.....	11
10 Protection against accidental contact with live parts	11
11 Moisture resistance and insulation.....	12
12 Electric strength	12
13 Thermal endurance test for windings	12
14 Normal conditions.....	12
15 Abnormal conditions	13
16 Fault conditions	13
17 Construction	14
18 Creepage distances and clearances	14
19 Protective circuits	14
19.1 General.....	14
19.2 Earth-leakage protection	15
19.3 Open-circuit protection.....	15
20 Screws, current-carrying parts and connections.....	16
21 Resistance to heat, fire and tracking.....	16
22 Resistance to corrosion	16
23 No-load rated output voltage and rated output current	16
24 Applicable annexes of IEC 61347-1	16
Annex A (normative) Measurement of current and voltages in the output circuits of electronic controlgear for neon tubes	17
A.1 General.....	17
A.1.1 Information to be provided by manufacturers	17
A.1.2 Measurement of output voltage and current	17
A.1.3 Amplitude modulations.....	17
A.1.4 Spikes and high-frequency harmonics.....	18
A.1.5 Test conditions	18
A.2 Instrumentation	18
A.3 Measurements	19

A.3.1	Measurement of no-load output voltage	19
A.3.2	Measurement of output current	19
A.3.3	Measurement of earth fault currents	20
Annex B (informative)	Schedule of more onerous requirements	21
Bibliography	22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –**Part 2-10: Particular requirements –
Electronic controlgear for high-frequency operation of tubular
cold-cathode discharge lamps (neon tubes)**

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 61347-2-10 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 2000 and Amendment 1:2008. 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 as appropriate;
- b) clarification of sample item numbers.

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

Draft	Report on voting
34C/1584/CDV	34C/1592/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 61347-2-10:2000 and IEC 61347-2-10:2000/AMD1:2008 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 61347-2-10:2000 and IEC 61347-2-10:2000/AMD1:2008.

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.

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

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

CONTROLGEAR FOR ELECTRIC LIGHT SOURCES – SAFETY –

Part 2-10: Particular requirements – Electronic controlgear for high-frequency operation of tubular cold-cathode discharge lamps (neon tubes)

1 Scope

This part of IEC 61347 specifies safety requirements for electronic controlgear 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 DC or AC supply voltages not exceeding 1 000 V (at 50 Hz or 60 Hz in case of alternating current).

NOTE 1 Historically, such types of controlgear were referred to as invertors or convertors.

NOTE 2 In Japan, the voltage limit for the application of this document is set to 15 000 V.

This document applies for controlgear of type A and controlgear of type B, which are specified as follows:

- Type A: controlgear operating within the frequency range 20 kHz to 50 kHz, and having an output voltage not exceeding 5 000 V peak between terminals, with a maximum output current limited to 35 mA (RMS) and 50 mA (peak value) and a supply voltage not exceeding 250 V.

NOTE 3 The output current of a type A unit can be considered as not presenting an electric shock hazard due to the limits on the current and frequency range.

NOTE 4 In Japan, the output voltage of 15 000 V is acceptable.

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

NOTE 5 In Japan, a type B controlgear providing an output current exceeding 50 mA is not acceptable.

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

IEC 60598-1:2020, *Luminaires – Part 1: General requirements and tests*

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

ISO 3864-1:2011, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN