SLOVENSKI STANDARD
SIST EN IEC 63129:2020

01-september-2020

Določitev značilnosti vklopnega toka pri izdelkih za razsvetljavo (IEC 63129:2020)

Determination of inrush current characteristics of lighting products (IEC 63129:2020)

Bestimmung der Eigenschaften des Einschaltstroms von Beleuchtungsprodukten (IEC 63129:2020)

Détermination des caractéristiques du courant d'appel des produits d'éclairage (IEC 63129:2020)

Ta slovenski standard je istoveten z: EN IEC 63129:2020

ICS:

29.140.99	Drugi standardi v zvezi z žarnicami	Other standards related to lamps

SIST EN IEC 63129:2020 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63129

June 2020

ICS 29.140.01; 29.140.99

English Version

Determination of inrush current characteristics of lighting products (IEC 63129:2020)

Détermination des caractéristiques du courant d'appel des produits d'éclairage (IEC 63129:2020)

Bestimmung der Eigenschaften des Einschaltstroms von Beleuchtungsprodukten (IEC 63129:2020)

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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

Ref. No. EN IEC 63129:2020 E

European foreword

The text of document 34/636/CDV, future edition 1 of IEC 63129, prepared by IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63129:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-02-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-05-26

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Endorsement notice

The text of the International Standard IEC 63129:2020 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 60669-1	NOTE	Harmonized as EN 60669-1

IEC 63129

Edition 1.0 2020-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Determination of inrush current characteristics of lighting products

Détermination des caractéristiques du courant d'appel des produits d'éclairage

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.140.01; 29.140.99

ISBN 978-2-8322-8205-2

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 63129 has been prepared by IEC technical committee 34: Lamps and related equipment.

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

CDV	Report on voting
34/636/CDV	34/679/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Inrush current is the transient current drawn by an electrical device after it is switched on via an independent mains switch, the maximum amplitude of which is often much higher than in steady state during normal operation. Inrush current occurs because of charging capacitances during power up of a device.

Quantities such as peak inrush current and inrush current pulse duration are key parameters to characterize the inrush current, which are important to consider when selecting the switchgear of a lighting installation. This information is indispensable for electric installation planners, lighting designers and installers to be able to guarantee compatibility of a lighting system with other installation components like switches and overcurrent protection devices.

Careful selection of overcurrent protection devices, like circuit breakers, is important when dealing with high inrush currents. The overcurrent protection should react quickly to overload or short circuit but should not interrupt the circuit when an inrush current flows (i.e. false tripping). Another unwanted adverse effect that could occur when inrush current is not considered is welding of contacts of mechanical or electromechanical switches (manual or automatic).

The aim of this document is to determine the peak inrush current and the inrush current pulse duration of one or multiple lighting products of the same type.

This can serve as valuable information for installers in making the correct selection of components like switches and overcurrent protection devices in an installation or conversely for determination of the maximum number of lighting products of the same type that can be applied in an installation with switches and overcurrent protection devices (see Annex A).

The resulting functional compatibility between switchgear and lighting products in an installation is the main rationale for this document.

The rated voltage of lighting products which can be tested with this document is limited to 230 V AC only. Future inclusion of other voltages (for example 100 V AC, 120 V AC, 200 V AC, 277 V AC, 347 V AC) is not excluded.

DETERMINATION OF INRUSH CURRENT CHARACTERISTICS OF LIGHTING PRODUCTS

1 Scope

This document describes a method, based on measurements combined with calculations, to determine specific characteristics of the inrush current of single and/or multiple lighting products of the same type. Lighting products include the following:

- light sources with integrated controlgear,
- controlgear,
- luminaires.

The inrush current characteristics that are determined are

- the peak inrush current,
- the inrush current pulse duration.

This document applies to lighting products connected to low-voltage 230 V AC 50/60 Hz electrical supply networks.

NOTE In Clause 6 it is stated that the methodology applies reference values for the reference (line) inductance and the reference (short circuit) peak current which reflect the typical situation in a 230 V AC installation.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
bidirectional diode thyristor
DIAC
two-terminal thyristor having substantially the same switching behaviour in the first and third quadrants of the current-voltage characteristic

[SOURCE: IEC 60050-521:2002, 521-04-66]

3.2
bidirectional triode thyristor
TRIAC
three-terminal thyristor having substantially the same switching behaviour in the first and third quadrants of the current-voltage characteristic

[SOURCE: IEC 60050-521:2002, 521-04-67]

3.3
circuit-breaker
mechanical switching device, capable of making, carrying and breaking currents under normal circuit conditions and also making, carrying for a specified duration and breaking currents under specified abnormal circuit conditions such as those of short circuit

[SOURCE: IEC 60050-441:2000, 441-14-20]

3.4
control gear
controlgear
<for an electric light source> unit inserted between the power supply (IEV 151-13-75) and at least one light source, which serves to supply the light source(s) with its (their) rated voltage or rated current, and which can consist of one or more separate components

Note 1 to entry: The control gear can include means for igniting, dimming, correcting the power factor and suppressing radio interference, and further control functions.

Note 2 to entry: The control gear consists of a power supply (IEV 151-13-76) and a control unit.

Note 3 to entry: The control gear can be partly or totally integrated in the light source.

Note 4 to entry: The terms "control gear" and "controlgear" are interchangeable. In IEC standards, the term "controlgear" is commonly used.

[SOURCE: IEC 60050-845:—, 845-28-048]

3.5
I_{inrush}
inrush current
transient current associated with energizing of electrical apparatus or components

EXAMPLE Lighting products, transformers, cables, reactors.

[SOURCE: IEC 60050-448:1995, 448-11-30, modified – In the definition, "electrical apparatus or components" replaces "transformer, cables, reactors, etc." now given as examples.]

3.6
t_{Hx}
inrush current pulse duration
time period over which the value of the inrush current is larger than x % of the peak inrush current

Note 1 to entry: See also Figure 1.

Note 2 to entry: Any RF noise should be disregarded.

Note 3 to entry: By this definition, the inrush current pulse duration t_{H50} is the full width at half maximum (FWHM) of the current pulse.

Note 4 to entry: In this document values of x = 10 and x = 50 are used.

3.7
I_{peak}
peak inrush current
maximum of the absolute value of the inrush current

Note 1 to entry: The peak inrush current is typically reached when switch-on happens at the point in time that the mains voltage is at its peak.

Note 2 to entry: See also Figure 1.

Note 3 to entry: Any RF noise should be disregarded.