### SLOVENSKI STANDARD

#### **SIST EN 60923:2006**

januar 2006

Pribor za sijalke – Dušilke za sijalke (razen cevastih fluorescenčnih sijalk) – Zahteve glede tehničnih lastnosti (IEC 60923:2005)

(istoveten EN 60923:2005)

Auxiliaries for lamps – Ballasts for discharge lamps (excluding tubular fluorescent lamps) – Performance requirements (IEC 60923:2005)

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 60923:2006 https://standards.iteh.ai/catalog/standards/sist/cacbd9b6-fea0-4bb4-a8c5-e01b149183b7/sist-en-60923-2006

ICS 29.140.30

Referenčna številka SIST EN 60923:2006(en)

# iTeh STANDARD PREVIEW (standards.iteh.ai)

#### **EUROPEAN STANDARD**

#### EN 60923

### NORME EUROPÉENNE

### **EUROPÄISCHE NORM**

November 2005

ICS 29.140.30

Supersedes EN 60923:1996 + A1:2001

English version

# Auxiliaries for lamps – Ballasts for discharge lamps (excluding tubular fluorescent lamps) Performance requirements

(IEC 60923:2005)

Appareillages de lampes –
Ballasts pour lampes à décharge
(à l'exclusion des lampes tubulaires
à fluorescence) –
Exigences de performance
(CEI 60923:2005)

mpes – Geräte für Lampen –
Vorschaltgeräte für Entladungslampen
(ausgenommen röhrenförmige
Leuchtstofflampen) –
rmance Anforderungen an die Arbeitsweise
(IEC 60923:2005)

Teh STANDARD PREVIEW

This European Standard was approved by CENELEC on 2005-10-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

### **CENELEC**

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

#### **Foreword**

The text of document 34C/688/FDIS, future edition 3 of IEC 60923, prepared by SC 34C, Auxiliaries for lamps, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60923 on 2005-10-01.

This European Standard supersedes EN 60923:1996 + A1:2001.

The purpose of publishing this new edition of EN 60923 was to remove EMC related requirements which are deemed to be of a regional nature. At the same time, references to quoted standards were updated.

The following dates were fixed:

 latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement

(dop) 2006-07-01

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2012-10-01

This standard is to be read in conjunction with EN 61347-2-9, Lamp controlgear – Part 2-9: Particular requirements for ballasts for discharge lamps (excluding fluorescent lamps) together with EN 61347-1, Lamp controlgear – Part 1: General and safety requirements.

(standards.iteh.ai)

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

- Requirements proper: in roman type. <u>SIST EN 60923:2006</u>
- Test specifications:tpin/italic/typeteh.ai/catalog/standards/sist/cacbd9b6-fea0-4bb4-a8c5-
- Explanatory matter: in smaller roman type. e01b149183b7/sist-en-60923-2006

Annex ZA has been added by CENELEC.

**Endorsement notice** 

The text of the International Standard IEC 60923:2005 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60921 NOTE Harmonized as EN 60921:2004 (not modified).

IEC 61000-3-2 NOTE Harmonized as EN 61000-3-2:2000 (modified).

IEC 61547 NOTE Harmonized as EN 61547:1995 (not modified).

\_\_\_\_

## Annex ZA (normative)

## Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 60188	- 1)	High-pressure mercury vapour lamps - Performance specifications	EN 60188	2001 2)
IEC 60192	- 1)	Low pressure sodium vapour lamps - Performance specifications	EN 60192	2001 2)
IEC 60662	- 1)	High-pressure sodium vapour lamps	EN 60662	1993 <sup>2)</sup>
IEC 61167	- <sup>1)</sup>	Metal halide lamps	EN 61167	1994 <sup>2)</sup>
IEC 61347-1	- <sup>1)</sup>	Lamp controlgear Part (General and safety requirements	EN 61347-1 + corr. July	2001 <sup>2)</sup> 2003
IEC 61347-2-1	_ 1) https://st	Part 2-1: Particular requirements for starting devices (other than glow starters) and ards. itch.ai/catalog/standards/sist/cacbd9b6-fea0-4bb	EN 61347-2-1 + corr. July 4-a8c5-	2001 <sup>2)</sup> 2003
IEC 61347-2-9	- 1)	Part 2-9: Particular requirements for ballasts for discharge lamps (excluding fluorescent lamps)	EN 61347-2-9 + corr. July	2001 <sup>2)</sup> 2003

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

# iTeh STANDARD PREVIEW (standards.iteh.ai)

## NORME INTERNATIONALE INTERNATIONAL STANDARD

CEI IEC 60923

Edition 3.1

2006-09

Edition 3:2005 consolidée par l'amendement 1:2006 Edition 3:2005 consolidated with amendment 1:2006

Appareillages de lampes –
Ballasts pour lampes à décharge
(à l'exclusion des lampes tubulaires à fluorescence) – Exigences de performance

## iTeh STANDARD PREVIEW Auxiliaries for lamps =

Auxiliaries for lamps –
Ballasts for discharge lamps
(excluding tubular fluorescent lamps) –
https://Performance.requirementsa0-4bb4-a8c5-

e01b149183b7/sist-en-60923-2006

© IEC 2006 Droits de reproduction réservés — Copyright - all rights reserved

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'éditeur.

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 the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



CODE PRIX PRICE CODE



#### CONTENTS

FΟ	DREWORD	7	
INT	TRODUCTION	11	
1	Scope	13	
2	Normative references		
3	Terms and definitions		
4	General notes on tests		
5	Marking		
6	•		
7			
8	·		
9	.,,,		
	9.1 Lamp operating current waveform	17	
	9.2 Test procedure		
10	Magnetic screening	19	
11			
12	Electrical requirements for ballasts for high-pressure mercury vapour lamps		
	12.1 Ballast setting	19	
10	12.3 Open-circuit voltage (minimum voltage for stable operation)		
13	Electrical requirements for ballasts for low-pressure sodium vapour lamps		
	13.1 Ballast settinge01h149183h7/sist-en-60923-2006		
	13.3 Open-circuit voltage (minimum voltage for stable operation)		
14	Electrical requirements for ballasts for metal halide lamps		
	14.1 Ballast setting	25	
	14.2 Short-circuit current and run-up conditions	25	
	14.3 Open-circuit voltage (minimum voltage for stable operation)		
15	2		
	15.1 Ballast setting		
	15.2 Short-circuit current		
	15.3 Open-circuit voltage	31	
Anı	nnex A (normative) Reference ballasts	33	
Anı	nnex B (normative) Reference lamps	39	
	nnex C (normative) General requirements for tests		
Anı	nnex D (normative) Explanation of measurements of ballast setting and lamp-		
•	erating current waveform for high-pressure sodium vapour lamps		
Ani	nex E (informative) Interpretations	51	

Figure 1 – Measurement of current waveform	19
Figure 2 – Circuit for testing ballasts for high-pressure mercury vapour and low-pressure sodium vapour lamps	21
Figure 3 – Lamp inrush-current test circuit	27
Figure A.1 – Recommended circuit for the measurement of voltage/current ratio of the reference ballast	35
Figure A.2 – Recommended circuit for the determination of power-factor of the reference ballast	35
Figure B.1 – Recommended circuit for the selection of reference lamps	41
Figure D.1 – HPS ballast setting compliance characteristics for a lamp operated from a reference ballast and from a test ballast	49
Table 1 – Lamp operating current waveform, maximum ratio of peak value to r.m.s	
Table 2 – Test current	25
Table 3 – Short-circuit current ratio	31

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 60923:2006

#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

# AUXILIARIES FOR LAMPS – BALLASTS FOR DISCHARGE LAMPS (EXCLUDING TUBULAR FLUORESCENT LAMPS) – PERFORMANCE REQUIREMENTS

#### **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
- https://standards.iteh.ai/catalog/standards/sist/cacbd9b6-fea0-4bb4-a8c5
  5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60923 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lamps and related equipment.

This consolidated version of IEC 60923 consists of the third edition (2005) [documents 34C/688/FDIS and 34C/694/RVD] and its amendment 1 (2006) [documents 34C/749/FDIS and 34C/758/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 3.1.

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

The purpose of publishing the third edition of IEC 60923 was to remove EMC related requirements which are deemed to be of a regional nature. At the same time, references to quoted standards were updated.

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

This standard is to be read in conjunction with IEC 61347-2-9, Lamp controlgear – Part 2-9: Particular requirements for ballasts for discharge lamps (excluding fluorescent lamps) together with IEC 61347-1, Lamp controlgear – Part 1: General and safety requirements.

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

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

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.

# iTeh STANDARD PREVIEW (standards.iteh.ai)

#### INTRODUCTION

This standard covers performance requirements for ballasts for discharge lamps.

In order to obtain satisfactory performance of discharge lamps and their associated ballasts, it is necessary that certain features of their design be properly coordinated. Therefore, it is essential that specifications for them be written in terms of measurements made against some common baseline of reference, which should be permanent and reproducible.

These conditions may be fulfilled by special or selected inductive-type ballasts, called "reference ballasts". These ballasts may be used for testing ordinary ballasts and for the selection of reference lamps.

Moreover, the testing of ballasts requires a clear definition of testing methods. This testing will, in general, be made with reference lamps and, in particular, by comparing results obtained on such lamps with these ballasts and with the reference ballast.

Because of the special characteristics of discharge lamps, two ranges of supply voltage variation had to be considered. Whenever safety is involved, the classical range of variation from 90 % to 110 % of the rated supply voltage is retained, but for certain clauses where only operational conditions are concerned a smaller range from 92 % to 106 % of the rated value has been considered.

# iTeh STANDARD PREVIEW (standards.iteh.ai)