SLOVENSKI STANDARD
SIST HD 60364-8-1:2015

01-april-2015

Nizkonapetostne električne inštalacije - 8-1. del: Energijska učinkovitost

Low voltage electrical installations - Part 8-1: Energy efficiency

Ta slovenski standard je istoveten z: **HD 60364-8-1:2015**

ICS:

91.140.50 Sistemi za oskrbo z elektriko Electricity supply systems

SIST HD 60364-8-1:2015 **en**

HARMONIZATION DOCUMENT

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HD 60364-8-1

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English Version

Low-voltage electrical installations - Part 8-1: Energy efficiency (IEC 60364-8-1:2014 , modified)

Installations électriques basse tension - Partie 8-1: Efficacité énergétique (IEC 60364-8-1:2014 , modifiée)

Errichten von Niederspannungsanlagen - Teil 8-1: Energieeffizienz (IEC 60364-8-1:2014 , modifiziert)

This Harmonization Document was approved by CENELEC on 2014-12-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document at national level.

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

This Harmonization Document exists in three official versions (English, French, German).

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. HD 60364-8-1:2015 E

Foreword

The text of document 64/1969/FDIS, future edition 1 of IEC 60364-8-1, prepared by IEC/TC 64 "Electrical installations and protection against electric shock" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as HD 60364-8-1:2015.

A draft amendment, which covers common modifications to IEC 60364-8-1:2014, was prepared by CLC/TC 64 "Electrical installations and protection against electric shock" and approved by CENELEC.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-12-22
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2017-12-22

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

Endorsement notice

The text of the International Standard IEC 60364-8-1:2014 was approved by CENELEC as a European Standard with agreed common modifications.

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

IEC 60364-6	NOTE Harmonized as HD 60364-6.
ISO 50001	NOTE Harmonized as EN ISO 50001.

COMMON MODIFICATIONS

8.6.2

Add *at the end of the clause the following note:*

NOTE The use of carefully selected software for energy management purposes facilitates the implementation of all these requirements.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60034-30	-	Rotating electrical machines -- Part 30: Efficiency classes of single-speed, three-phase, cage-induction motors (IE code)	EN 60034-30	-
IEC 60287-3-2	-	Electric cables - Calculation of the current rating - Part 3: Sections on operating conditions - Section 2: Economic optimization of power cable size	-	-
IEC 60364	series	Low-voltage electrical installations -- Part 1: Fundamental principles, assessment of general characteristics, definitions	HD 60364	series
IEC 60364-5-52 (mod)	2009	Low-voltage electrical installations -- Part 5-52: Selection and erection of electrical equipment - Wiring systems	HD 60364-5-52	2011
IEC 60364-5-55 (mod)	2011	Electrical installations of buildings -- Part 5-55: Selection and erection of electrical equipment - Other equipment	HD 60364-5-559	2012
IEC 60364-7-712	2002	Electrical installations of buildings -- Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems	HD 60364-7-712	2005
IEC 61557-12	2007	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures -- Part 12: Performance measuring and monitoring devices (PMD)	EN 61557-12	2008
IEC 62053-21	-	Electricity metering equipment (a.c.) - Particular requirements -- Part 21: Static meters for active energy (classes 1 and 2)	EN 62053-21	-
IEC 62053-22	-	Electricity metering equipment (a.c.) - Particular requirements -- Part 22: Static meters for active energy (classes 0,2 S and 0,5 S)	EN 62053-22	-

IEC 60364-8-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Low-voltage electrical installations – Part 8-1: Energy efficiency

Installations électriques basse tension – Partie 8-1: Efficacité énergétique

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 8-1: Energy efficiency

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.
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International Standard IEC 60364-8-1 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

The text of this standard is based on the first edition and the following documents:

FDIS	Report on voting
64/1969/FDIS	64/1977/RVD

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

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

A list of all parts of the IEC 60364, under the general title *Low-voltage electrical installations*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

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

The optimization of electrical energy usage can be facilitated by appropriate design and installation considerations. An electrical installation can provide the required level of service and safety for the lowest electrical consumption. This is considered by designers as a general requirement of their design procedures in order to establish the best use of electrical energy. In addition to the many parameters taken into account in the design of electrical installations, more importance is nowadays focused on reducing losses within the system and its use. The design of the whole installation therefore takes into account inputs from users, suppliers and utilities.

The rate of replacement of existing properties is low, between 2 % and 5 % annually, depending on the state of the local economy. It is therefore important that this standard covers existing electrical installations in buildings, in addition to new installations. It is in the refurbishment of existing buildings that significant overall improvements in energy efficiency can be achieved.

The optimization of the use of electricity is based on energy efficiency management which is based on the price of electricity, electrical consumption and real-time adaptation. Efficiency is checked by measurement during the whole life of the electrical installation. This helps identify opportunities for any improvements and corrections. Improvements and corrections may be implemented through major investment or by an incremental method. The aim is to provide a design for an efficient electrical installation which allows an energy management process to suit the user's needs, and in accordance with an acceptable investment.

This standard first introduces the different measures to ensure an energy efficient installation based on kWh saving. It then provides guidance on giving priority to the measures depending on the return of investment, i.e. the saving of electrical energy costs divided by the amount of investment.

This standard is intended to provide requirements and recommendations for the electrical part of the energy management system addressed by ISO 50001 [1][1].

Account should be taken, if appropriate, of induced works (civil works, compartmentalization) and the necessity to expect, or not, the modifiability of the installation.

This standard introduces requirements and recommendations to design the adequate installation in order to give the ability to improve the management of performance of the installation by the tenant/user or for example the energy manager.

All requirements and recommendations of this part of IEC 60364 enhance the requirements contained in Parts 1 to 7 of the standard.

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1 Numbers in square brackets refer to the Bibliography.

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 8-1: Energy efficiency

1 Scope

This part of IEC 60364 provides additional requirements, measures and recommendations for the design, erection and verification of all types of low-voltage electrical installation including local production and storage of energy for optimizing the overall efficient use of electricity.

It introduces requirements and recommendations for the design of an electrical installation within the framework of an energy efficiency management approach in order to get the best permanent functionally equivalent service for the lowest electrical energy consumption and the most acceptable energy availability and economic balance.

These requirements and recommendations apply, within the scope of the IEC 60364 series, for new installations and modification of existing installations.

This standard is applicable to the electrical installation of a building or system and does not apply to products. The energy efficiency of these products and their operational requirements are covered by the relevant product standards.

This standard does not specifically address building automation systems.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60034-30, *Rotating electrical machines – Part 30: Efficiency classes of single-speed, three-phase, cage-induction motors (IE-code)*

IEC 60287-3-2, *Electric cables – Calculation of the current rating – Part 3-2: Sections on operating conditions – Economic optimization of power cable size*

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 60364-5-52:2009, *Low-voltage electrical installations – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

IEC 60364-5-55:2011, *Low-voltage electrical installations – Part 5-55: Selection and erection of electrical equipment – Other equipment*

IEC 60364-7-712:2002, *Electrical installations of buildings – Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems*

IEC 61557-12:2007, *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 12: performance measuring and monitoring devices (PMD)*

IEC 62053-21, *Electricity metering equipment (a.c.) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2)*

IEC 62053-22, *Electricity metering equipment (a.c.) – Particular requirements – Part 22: Static meters for active energy (classes 0,2 S and 0,5 S)*

3 Terms and definitions

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

3.1 General

3.1.1
zone
area (or a surface) defining part of an installation

Note 1 to entry: Examples of a zone can be a kitchen of 20 m^2 or a storage area of 500 m^2.

3.1.2
current-using equipment
electrical equipment intended to convert electrical energy into another form of energy, for example light, heat, mechanical energy

[SOURCE: IEC 60050-826:2004, 826-16-02] [2]

3.1.3
electrical distribution system
set of coordinated electrical equipment such as transformers, protection relays, circuit-breakers, wires, busbars, etc. for the purpose of powering current-using equipment with electrical energy

3.1.4
usage
type of application for which electricity is used such as lighting, heating, etc.

3.1.5
distribution system design
design of cabling and associated electrical equipment for the distribution of electrical energy

3.1.6
load energy profile
electrical energy consumed over a specified period of time for a mesh or a group of meshes

3.1.7
electrical energy efficiency
EEE
system approach to optimize the efficiency of electrical energy use

Note 1 to entry: Energy efficiency improvement measures take into account the following considerations:

– both the consumption (kWh) and the price of electricity technology;

– environmental impact.

Note 2 to entry: “Energy efficiency” is considered to represent “Electrical energy efficiency” in this standard.