SLOVENSKI STANDARD
SIST EN IEC 60335-2-76:2018

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SIST EN 60335-2-76:2005
SIST EN 60335-2-76:2005/A1:2006
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SIST EN 60335-2-76:2005/A2:2015

Gospodinjski in podobni električni aparati - Varnost - 2-76. del: Posebne zahteve za generatorje impulzov za električne ograje

Household and similar electrical appliances - Safety - Part 2-76: Particular requirements for electric fence energizers

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke – Teil 2-76: Besondere Anforderungen für Elektrozaungeräte

Appareils électrodomestiques et analogues - Sécurité - Partie 2-76: Exigences particulières pour les électrificateurs de clôtures

Ta slovenski standard je istoveten z: **EN IEC 60335-2-76:2018**

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65.040.10	Poslopja, naprave in oprema za živino	Livestock buildings, installations and equipment

SIST EN IEC 60335-2-76:2018 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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EN 60335-2-76:2005/A12:2010 and
EN 60335-2-76:2005/A2:2015

English Version

Household and similar electrical appliances - Safety - Part 2-76: Particular requirements for electric fence energizers (IEC 60335-2-76:2018)

Appareils électrodomestiques et analogues - Sécurité - Partie 2-76: Exigences particulières pour les électrificateurs de clôtures
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Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 2-76: Besondere Anforderungen für Elektrozaungeräte
(IEC 60335-2-76:2018)

This European Standard was approved by CENELEC on 2018-08-03. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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

European foreword

The text of document 61H/366/FDIS, future edition 3 of IEC 60335-2-76, prepared by SC 61H "Safety of electrically-operated farm appliances" of IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60335-2-76:2018.

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) 2019-05-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-08-03

This document supersedes EN 60335-2-76:2005, EN 60335-2-76:2005/A1:2006, EN 60335-2-76:2005:A11:2008, EN 60335-2-76:2005/A12:2010 and EN 60335-2-76:2005/A2:2015.

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.

Endorsement notice

The text of the International Standard IEC 60335-2-76:2018 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 60335-2-86	NOTE	Harmonized as EN 60335-2-86
IEC 60335-2-87	NOTE	Harmonized as EN 60335-2-87

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.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-52	2017	Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)	EN IEC 60068-2-52	2018
IEC 60320-3	-	Appliance couplers for household and similar general purposes - Part 3: Standard sheets and gauges	EN 60320-3	-
ISO 3864-1	-	Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings	-	-

IEC 60335-2-76

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INTERNATIONAL STANDARD

colour inside

Household and similar electrical appliances – Safety – Part 2-76: Particular requirements for electric fence energizers

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-76: Particular requirements for electric fence energizers

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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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.

This part of International Standard IEC 60335 has been prepared by subcommittee 61H: Safety of electrically-operated farm appliances, of IEC technical committee 61: Safety of household and similar electrical appliances.

This third edition cancels and replaces the second edition published in 2002, Amendment 1:2006 and Amendment 2:2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- the text has been aligned with Edition 5.2 of Part 1;
- additional requirements for security fence energizers have been introduced (Clauses 3, 7, 19, 22, Figures and Annex BB);
- specific requirements for battery operated energizers have been moved to Annex S.

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

FDIS	Report on voting
61H/366/FDIS	61H/367/RVD

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.

A list of all parts in the IEC 60335 series, published under the general title *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This Part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fifth edition (2010) of that standard.

NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

This Part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for electric fence energizers.

When a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional Annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type
- *test specifications: in italic type*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and associated noun are also in bold.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

The following differences exist in the countries indicated below:

6.101: Only energy limited energizers are allowed (All EU and EFTA counties).

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.

A bilingual version of this publication may be issued at a later date.

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

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

NOTE 1 Throughout this publication, when “Part 1” is mentioned, it refers to IEC 60335-1.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 2 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 3 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-76: Particular requirements for electric fence energizers

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of **electric fence energizers**, the **rated voltage** of which is not more than 250 V and by means of which **fence** wires in agricultural, domestic or feral animal control **fences** and **security fences** may be electrified or monitored.

NOTE 101 Examples of **electric fence energizers** coming within the scope of this standard are:

– **mains-operated energizers**;

– **battery-operated electric fence energizers suitable for connection to the mains**, as shown in Figure 101 and Figure 102;

– **electric fence energizers** operated by non-rechargeable batteries either incorporated or separate.

This standard does not in general take into account

– the use of appliances by young children or infirm persons without supervision;

– the playing with appliances by young children.

NOTE 102 Attention is drawn to the fact that

– for appliances intended to be used on board ships or aircraft, additional requirements can be necessary;

– in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities.

NOTE 103 This standard does not apply to

– electromagnetically coupled animal trainer collars;

– appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);

– separate battery chargers (IEC 60335-2-29);

– electric fishing machines (IEC 60335-2-86);

– electric animal-stunning equipment (IEC 60335-2-87);

– appliances for medical purposes (IEC 60601).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60068-2-52:2017, *Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

IEC 60320-3, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

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

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

3.1.1 *Addition:*

Note 1 to entry: For **type D energizers**, the **rated voltage** of the **energizer** is the **rated voltage** for battery supply.

Replacement:

3.1.9
normal operation
operation of the appliance under the following conditions: the **electric fence energizer** is operated as in normal use when connected to the supply, with no load connected to the output terminals

3.1.101
prospective peak voltage
peak output voltage of the impulse generator specified in Clause 14 that would be obtained with the **energizer** not connected to the test circuit

3.1.102
rated voltage for battery supply
voltage for battery supply, for **type A energizers**, **type B energizers**, **type C energizers** and **type D energizers** assigned to the **energizer** by the manufacturer

3.1.103
rated voltage range for battery supply
voltage range for battery supply, for **type A energizers**, **type B energizers**, **type C energizers** and **type D energizers** assigned to the **energizer** by the manufacturer, expressed by its lower and upper limits

3.1.104
impulse duration
duration of that part of the impulse that contains 95 % of the overall energy and is the shortest interval of integration of $I^2(t)$ that gives 95 % of the integration of $I^2(t)$ over the total impulse

Note 1 to entry: $I(t)$ is the impulse current as a function of time.

3.1.105
output current
RMS value of the **output current** per impulse calculated over the impulse duration

3.5 Definitions relating to types of appliances

3.5.101
electric fence energizer
appliance that is intended to deliver periodically voltage impulses to a **fence** connected to it

Note 1 to entry: **Electric fence energizers** are hereinafter also referred to as **energizers**.

3.5.102
mains-operated energizer
energizer designed for direct connection to the mains