
Generatorji impulzov za električne ograje - Varnostne zahteve za baterijsko napajane generatorje impulzov za električne ograje, ki se jih da priključiti na omrežno napajanje (IEC 61011-2:1990; spremenjen)

Electric fence energizers – Safety requirements for battery – operated electric fence energizers not for connection to the supply mains (IEC 61011-2:1990, modified)

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SIST EN 61011-2:1999

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Descriptors: Electrical installation, electric fence, supply mains, battery, accumulator, safety requirement

English version

Electric fence energizers Safety requirements for battery-operated electric fence energizers not for connection to the supply mains

(IEC 1011-2:1990, modified)

Electrificateurs de clôtures
Règles de sécurité pour électrificateurs
de clôtures fonctionnant sur piles ou
accumulateurs et non destinés à être
raccordés au réseau de distribution
d'énergie
(CEI 1011-2:1990, modifiée)

Elektrozaungeräte
Sicherheitsbestimmungen für
batterie-betriebene Elektrozaungeräte, die
nicht für Netzanschluß vorgesehen sind
(IEC 1011-1:1990, modifiziert)

This European Standard was approved by CENELEC on 10 December 1991. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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 CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 1011-2 : 1990 could be accepted without textual changes, has shown that some common modifications were necessary for the acceptance as European Standard. The reference document, together with the common modifications prepared by the CENELEC Reporting Secretariat SR 61H, was submitted to the CENELEC members for formal vote.

The text of the draft was approved by CENELEC as EN 61011 on 10 December 1991.

The following dates were fixed:

- latest date of publication (dop) 1993-01-01
of an identical national
standard
- latest date of withdrawal (dow) 1993-07-01
of conflicting national
standards

For products which have complied with the relevant national standard before 1993-07-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-07-01.

This standard is intended to be used in conjunction with EN 61011 - Electric fence energizers - Safety requirements for mains-operated electric fence energizers.

The clauses of this standard supplement or modify the corresponding clauses of EN 61011. Where a particular subclause of EN 61011 is not mentioned in this standard, that subclause applies as far as is reasonable. Where this standard states 'addition', 'modification' or 'replacement', the relevant text of EN 61011 is to be adapted accordingly.

Subclauses, figures or tables which are in addition to those in EN 61011 are numbered starting from 101.

Annexes which are in addition to those in IEC 1011-1 are numbered ZA, ZB etc. Annexes designated 'normative' are part of the body of the standard. Annexes designated 'informative' are given only for information. In this standard, annex ZC (Cross references) is normative and annex ZB (A-deviations) is informative. There is no annex ZA.

NOTE. In this document, the following print types are used

- requirements proper: in roman type;
- *test specifications: in italic type;*
- explanatory matter: in smaller roman type.

CONTENTS

Clause	Page
1. Scope	4
2. Definitions	4
3. General requirement	5
4. General notes on tests	5
5. Rating	6
6. Classification	7
7. Marking	7
8. Protection against electric shock	8
9. Void	9
10. Output characteristics	9
11. Heating	9
12. Void	9
13. Electrical insulation and leakage current at operating temperature	9
14. Radio and television interference suppression	10
15. Moisture resistance	10
16. Insulation resistance and electric strength	10
17. Resistance to atmospheric surges	10
18. Endurance	11
19. Abnormal operation	12
20. Void	12
21. Mechanical strength	12
22. Construction	12
23. Internal wiring	13
24. Components	13
25. Supply connection and external flexible cables and cords	14
26. Terminals for external conductors	17
27. Void	17
28. Screws and connections	17
29. Creepage distances, clearances and distances through insulation	18
30. Resistance to heat, fire and tracking	18
31. Resistance to rusting	18
32. Void	18
STANDARD PREVIEW	
APPENDIX A - Thermal controls and overload releases	19
APPENDIX B - Electronic circuits	19
APPENDIX C - Measurement of creepage distances and clearances	19
APPENDIX D - Void	19
APPENDIX E - Instructions for the installation and operation of electric fences and their energizers	19
APPENDIX F - Circuit for measuring leakage currents	19
ANNEX ZB (informative) A-deviations	20
ANNEX ZC (normative) Publication references	21

ELECTRIC FENCE ENERGIZERS

Safety requirements for battery-operated electric fence energizers not for connection to the supply mains

1. Scope

This clause of EN 61011 is applicable except as follows:

1.1 Replacement:

This standard applies to battery-operated electric fence energizers not designed for connection to the supply mains and having rated supply voltage not exceeding 36 V d.c.

Examples of electric fence energizers within the scope of this standard are:

- electric fence energizers operated by non-rechargeable batteries either incorporated or separate;
- electric fence energizers operated by separate accumulators only;
- electric fence energizers intended to be connected to a battery charger not designed for connection to the supply mains;
- electric fence energizers incorporating a dry battery or an accumulator which can only be recharged when removed from the energizer.

Electric fence energizers may incorporate electronic circuits or electronic components.

Requirements for battery-operated electric fence energizers suitable for connection to the supply mains, for example those incorporating batteries and facilities for charging these batteries from the supply mains, are given in EN 61011-1.

2. Definitions

This clause of EN 61011 is applicable except as follows.

2.2.21 Replacement:

Battery-operated energizer not designed for connection to the supply mains denotes an energizer deriving its energy solely from dry

batteries, accumulators, or other sources of energy not designed for connection to the supply mains.

Battery operated electric fence energizers not designed for connection to the supply mains are hereinafter referred to as energizers.

Additional sub-clause:

2.2.101 *Rated Input current* denotes the average input current assigned to the energizer by the maker.

3. General requirement

This clause of EN 61011 is applicable.

4. General notes on tests

This clause of EN 61011 is applicable except as follows:

4.4.1 Item 4 - Replacement:

Unless otherwise specified, application to the input terminals or terminations for the connection of the battery of the most unfavourable supply voltage between:

- 0.55 and 1.1 times the rated voltage for battery supply, or 0.55 times the lower limit and 1.1 times the upper limit of the rated voltage range for battery supply, if the energizer can be used with dry batteries;
- 0.75 and 1.1 times the rated voltage for battery supply, or 0.75 times the lower limit and 1.1 times the upper limit of the rated voltage range for battery supply, if the energizer is designed for use with accumulators only,

except that, for energizers for which the maximum discharged energy per impulse does not exceed 10 J at 1.1 times the rated supply voltage or 1.1 times the upper limit of the rated supply voltage range, a supply voltage equal to 0.9 times the rated supply voltage or 0.9 times the lower limit of the rated supply voltage range is applied for determining the output voltage and the duration of the intervals between the impulses.

For energizers with more than one rated supply voltage, the most unfavourable rated supply voltage is chosen.

The values specified in the following table for the internal resistance per cell of the battery shall be taken into account.

Supply voltage	Internal resistance per cell (Ω)	
	Dry batteries	Accumulators
1.1 times rated voltage for battery supply	0.08	0.0012
1.0 times rated voltage for battery supply	0.10	0.0015
0.75 times rated voltage for battery supply	0.75	0.0060
0.55 times rated voltage for battery supply	2.00	-

For determining the internal resistance of a battery, two or more cells connected in parallel are considered to be one cell.

4.4.1 Item 5 - *Replacement:*

For energizers where the supply terminals or terminations for the connection of the battery have no indication for polarity, the application of the most unfavourable polarity.

4.4.1 Item 6

Not applicable.

4.4.2 *Additional items:*

101) The energizer is supplied at the most unfavourable supply voltage between 0 and 1.1 times the rated supply voltage or 1.1 times the upper limit of the rated supply voltage range.

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102) Supply terminals or terminations having an indication for polarity are connected to the opposite polarity, unless such a connection is unlikely to occur in normal use.

5. Rating

This clause of EN 61011 is applicable except as follows:

5.1 *Replacement:*

The rated supply voltage shall not exceed 36 V d.c.

Compliance is checked by inspection of the marking.

6. Classification

This clause of EN 61011 is applicable.

7. Marking

This clause of EN 61011 is applicable except as follows:

7.1 Replacement:

Energizers shall be marked with:

- rated supply voltage(s) or rated supply voltage range(s) in volts;
- symbol for nature of supply;
- rated input current in amperes;
- type of battery, unless the type is irrelevant for the operation of the energizer;
- maker's or responsible vendor's name, trade mark or identification mark;
- maker's model or type reference;
- designation for degree of protection against harmful ingress of water not less than IPX4;
- the European Standard number and/or the corresponding number of the national standard implementing the European Standard.
- the words "Read full instructions before use".

In addition, energizers shall be marked with the following warning:

"Do not connect to mains-operated equipment."

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The warning shall be written in the official language(s) of the country in which the energizer is to be sold.

For the type of battery, distinction should be made between dry batteries and accumulators, if necessary.

Additional markings are allowed, provided they do not give rise to misunderstanding.

7.4 Modification:

Delete the last two paragraphs.

7.9 Replacement:

Details of special precautions to be taken when installing or using the energizer shall be given in an instruction sheet which accompanies the energizer. The instruction sheet shall include a warning against putting combustible materials near the electric fence or its connection to the energizer and shall in particular emphasize the warning marked on the energizer which states "Do not connect to mains-operated equipment".

Additional sub-clause:

7.101 The supply terminals or terminations shall be clearly indicated by the symbol "+" or the colour red if of positive polarity, and by the symbol "-" or the colour black if of negative polarity, unless the polarity is irrelevant.

Compliance is checked by inspection.

8. Protection against electric shock

This clause of EN 61011 is applicable except as follows:

8.1 Replacement:

Energizers shall be so constructed and enclosed that there is adequate protection against accidental contact with live parts other than the means for the connection of the fence. This requirement applies for all positions of the energizer when it is wired and operated as in normal use, even after removal of detachable parts.

Enclosures shall have no openings giving access to live parts other than openings necessary for the use and working of the energizer.

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The insulating properties of lacquer, enamel, paper, cotton, sealing compound and oxide film on metal parts shall not be relied upon to give the required protection against accidental contact with live parts.

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If, for starting or stopping the energizer, the enclosure has to be opened, even with the aid of a tool, internal live parts shall be adequately protected against accidental contact when the enclosure is in the open position.

Parts in a battery compartment which become accessible when replacing batteries, even with the aid of a tool, shall not be live.

Compliance is checked by inspection and by a test with the standard test finger shown in Figure 1 of EN 61011. After removal of detachable parts and opening of the enclosure if this is necessary for starting or stopping the energizer, the test finger is applied, without appreciable force, in every possible position.

Apertures preventing the entry of the finger are further tested by means of a straight unjointed test finger of the same dimensions, which is applied with a force of 30 N; if this finger enters, the test with the standard test finger is repeated, except that the force necessary to push the finger through the aperture is exerted.

An electrical contact indicator is used to show contact.

It shall not be possible to touch bare live parts, other than the means of the connection of the fence, or live parts protected by lacquer, enamel, paper, cotton, sealing compound or oxide film only, with the test finger.

8.4 Replacement:

Capacitors and their casings, if of metal, shall not be connected to or be in contact with accessible metal parts, if one of the electrodes of the capacitor is connected to live parts other than those of the fence circuit.

Compliance is checked by inspection.

8.5 Not applicable.

9. Void.

10. Output characteristics

This clause of EN 61011 is applicable except as follows:

10.1 Modification:

Instead of the first paragraph the following applies:

Under normal operating conditions the energizer shall deliver impulses separated by intervals having a duration of at least 1 s.

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11. Heating

This clause of EN 61011 is applicable.

12. Void.

13. Electrical insulation and leakage current at operating temperature

This clause of EN 61011 is not applicable.